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THE IRON AGE

THURSDAY, JUNE 30, 1904.

The Becker-Brainard No. 1 14-inch Cutter and Reamer Grinder.

A disadvantage of the ordinary cutter grinder is that it requires extra fixtures for handling various styles of mill cutters and reamers, consequently a great amount of time is lost in making changes. The new machine illustrated herewith has been designed with a view to overcoming this objection, and is now being built by the Becker-Brainard Milling Machine Company, Hyde Park, Mass. It is capable of grinding heavy cutters of large diameter and long face, such as are used on the larger

to above, carries a knee, A, which may be swung around the column in either direction and raised or lowered as much as 6 inches by means of the hand wheel B. The adjustable vertical column is graduated to assist in setting the height to give the proper angle of clearance to the cutter for different diameters of emery wheels used. The knee supports a saddle, C, which in turn carries the table D. On the knee the saddle may be traveled perpendicularly to the column by the hand wheel E a maximum distance of 7 inches, and the table on the saddle has a longitudinal feed by rack and pinion through the hand wheel F of 20 inches. The stops S S on the front



Fig. 1.—The Becker-Brainard No. 1 14-Inch Cutter and Reamer Grinder.

column and planer type milling machines, and also large diameter inserted tooth cutters. The styles and sizes of cutters within its ability to handle include plain, straddle, form and end mills. The machine is made specially stiff and heavy to eliminate vibration, which frequently occurs in lighter grinders.

Fig. 1 shows a general view of the machine, from which it will be seen there are three main features—the columns for the support of the grinding wheels and two separate columns for holding the work carriages, one being used for grinding cutters parallel to their axis or at a slight angle thereto, the other for grinding at greater angles or perpendicular to the axis. The cutter to be ground is transferred from one table to the other for the different operations on the side and end teeth. The column at the left of the illustration, the one referred

of the table may be set to suit the length of the cutter which is being ground and limit the reciprocating movement imparted by the rack and pinion feeding mechanism. The swivel head G, bolted on the table, is graduated, so that the bar H may be quickly set to any horizontal angle. Where mills and reamers have to be ground on centers, they may be supported by both head and tail centers, as shown in the figure. For other work, such as grinding of saws or cutters which are mounted on a mandrel, arm I may be removed and a mandrel inserted in place of the other center, as shown in Fig. 4. A cutter mounted in this manner may be ground by sliding it on the bar instead of feeding the table, which insures its being ground absolutely parallel with its bore.

The other column is raised and lowered by the hand wheel J and supports the knee K, which is revolvable in

a horizontal plane. On the knee, saddle L has a longitudinal adjustment of 9 inches, and the head support M has a travel of 7 inches on the saddle perpendicular to the saddle travel. The latter adjustment is regulated by the hand wheel Q, but the adjustment of the saddle on the knee is obtained by pushing it along its ways. It may be locked in position by the lever nut R. The head N may be turned about the axis perpendicular to

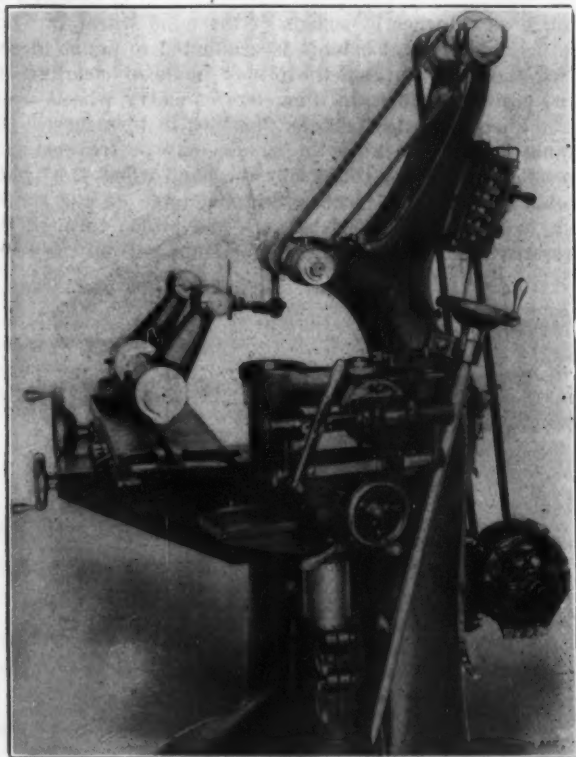


Fig. 2.—A Machine Equipped with Motor Drive Now Being Exhibited at the World's Fair.

its trunnion supports, as shown in Fig. 4, and may also be turned about the trunnion axis a few degrees either way from its vertical position. The traversing of the head to pass the cutter back and forth under the wheel is performed by hand through the manipulation of the lever O, its travel being 5 inches. The swivel head is graduated, as may be seen in Fig. 6, so that the clearance angle may be easily set. The sliding head is provided

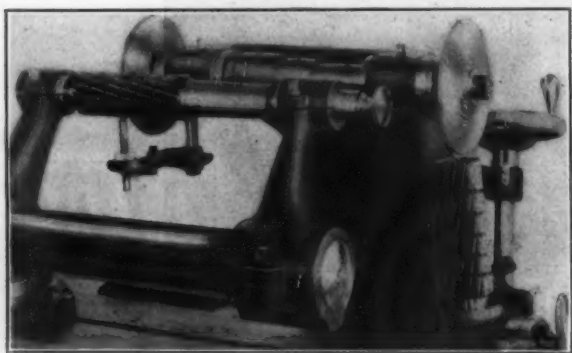


Fig. 3.—Showing How Work is Held for Grinding Side and End Teeth.

with a plunger finger, P, used as a tooth rest, the axis of which intersects the axis of the head so that it is always on center.

Fig. 2 illustrates one of these machines equipped with motor drive and now on exhibition in the Becker-Brainard Company's space, 13, in Machinery Hall at the Louisiana Purchase Exposition at St. Louis. The machine itself is identical in all respects to the one shown in Fig. 1, with the addition of the brackets bolted to the wheel spindle column to support a countershaft.

The manner of setting the machine for the grinding of taper shank end and side mills is indicated in Fig. 3. It

shows the use of the head and tail centers for the grinding of the side teeth and the use of the adjustable tooth rest. The end milling operation shows the method of

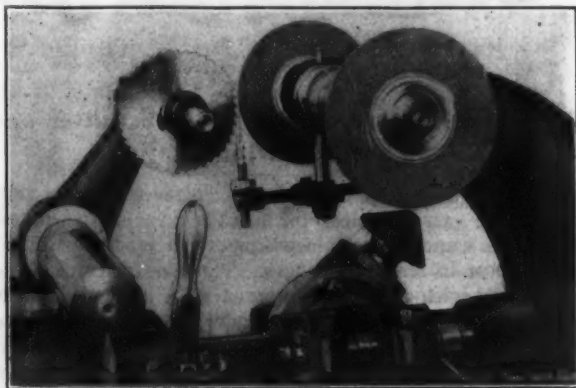


Fig. 4.—Showing a Slitting Saw on the Bar and the Sliding Head Swivelled to Grind a Bevel Mill.

obtaining clearance on the end of the cutter by turning the head to a slight angle about its trunnion supports.

In Fig. 4 the machine is shown grinding a slitting saw,

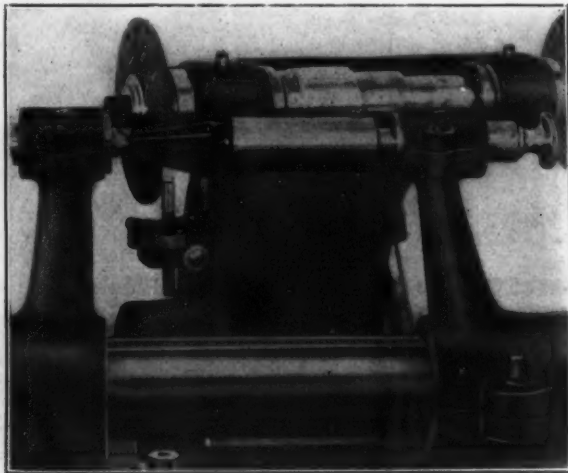


Fig. 5.—Showing a Bevel Mill Being Ground Between Centers at Left Hand Wheel.

using an arbor in place of the center in the rigid arm and dispensing with the removable tail center support. The nearer wheel is shown grinding a bevel mill, the head

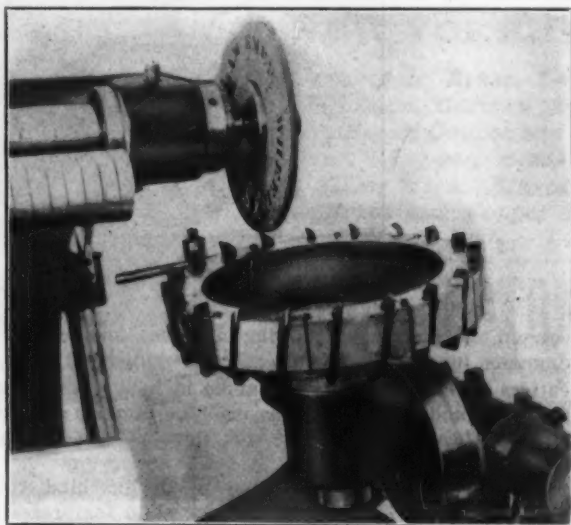


Fig. 6.—Showing a Large Inserted Tooth Face Mill in the Sliding Head.

for this operation being turned through an angle parallel with the axis of the supporting trunnion and the clearance obtained by turning the head to a slight angle about the axis of the trunnions.

Fig. 5 shows the setting for the grinding of a bevel mill having a taper shank. This also makes use of head and tail stock centers, and requires the turning of the graduated head through a horizontal angle to correspond to the angle of the cutter.

In Fig. 6 the machine is shown performing one of the most difficult operations which a cutter grinder can be called upon to do, and illustrates the manner of setting for the grinding of a large inserted tooth face mill. No special fixtures are required other than the insertion of the detachable tooth rest. The clearance, as before, is obtained by tilting the head toward the wheel. The wheel grinds at the lowest point of its circumference, and the work is traversed under the wheel by means of the hand lever.

The machine has a capacity for grinding all styles of cutters up to 14 inches in diameter and 14 inches long, and weighs complete about 1570 pounds.

The Fore River Ship & Engine Company to Reorganize

The plan for the reorganization of the Fore River Ship & Engine Company, Quincy, Mass., has been submitted to the stockholders and bondholders by Kidder, Peabody & Co., Boston, bankers, together with a statement by the Board of Directors, signed by President Francis T. Bowles and Secretary James A. Parker, and a letter from Former President Thomas A. Watson, the largest stockholder, indorsing the plan. The statement of the directors is in part as follows:

"For some months it has been evident to your directors that the company's capital was insufficient for the conduct of their business, as, owing to severe losses during the past nine months on contracts undertaken by the previous management, the quick capital had been practically absorbed and became entirely inadequate to carry on the economical purchase of materials and the daily expenditures of the plant. To enable the business to continue, the board has during the past year been compelled to borrow on demand notes the sum of \$600,000 to meet the daily outlays above referred to, to carry the work in process on which payments are not due, and to carry the amount earned on various Government contracts, but withheld until the final completion of the vessels.

"It has been for some time evident that not only must these demand notes be paid, but that an additional amount of quick capital must be raised in order to put the company's affairs on a sound basis. The matter has been the subject of the most careful consideration, and since April 1, when the company were unable to meet the semiannual interest on the \$1,250,000 of bonded debt, the directors have been aided by a committee of bondholders, the united deliberations resulting in the proposed plan of reorganization.

"The works, with the additions to existing facilities which will be provided by the money raised by the present plan of reorganization, will be able to economically fulfill their present contracts, to cover the whole field of marine construction, and to take full advantage of their business, which now amounts to about \$4,000,000 a year. With the additions above referred to it may be confidently said that only one or two other yards in the country will be so well equipped for economically doing the highest class of shipbuilding work, both naval and commercial.

"The plan as now offered to you is based on estimates as to the present value of the plant as a going concern, with the addition of \$1,250,000 new cash, of which \$600,000 will be used to discharge the notes above referred to. Besides this the present heavy interest charges on funded and floating debt will be removed, and the company's credit will be of the very best."

Ex-President Watson in his letter makes the statement that while the business of the Fore River Ship & Engine Company has been during the past two years such as to increase his confidence in their ultimate success, it is evident that, unless the present fixed charges of the company are substantially eliminated and a large addition to the quick capital immediately provided, a

receivership is inevitable and the ruin of the company a fact. Under these conditions prompt action must be taken and a reorganization of the company effected.

The plan of reorganization is as follows: "The corporation are now organized under the laws of the State of New Jersey, and their present capitalization and bonded indebtedness are:

First mortgage bonds.....	\$1,250,000
Preferred stock.....	1,935,500
Common stock.....	2,925,000
Total.....	\$6,110,500

"In addition to the above \$1,250,000 of first-mortgage bonds there are also \$356,000 of the same issue now outstanding, issued for improvements on the property, and held to secure part of the floating indebtedness of the company.

"It is proposed to organize a new corporation under the laws of the State of Massachusetts, if it be deemed wise to organize under the laws of that State (otherwise to organize elsewhere), to acquire the property and business, or substantially the property and business, of the Fore River Ship & Engine Company, including the benefit of all existing contracts, free from bonded indebtedness, but subject to all other indebtedness existing at time of transfer. The new corporation are to have, in addition to such property, \$1,250,000 paid in in cash. They are to be capitalized as follows:

Six per cent. noncumulative preferred stock of the par value of.....	\$2,400,000
Common stock of the par value of.....	2,400,000
Total.....	\$4,800,000

"The preferred stock is to be preferred in case of liquidation, and to be entitled to 6 per cent. noncumulative yearly dividends, and to have equal voting power to that of the common stock. Provision will be made by which no mortgage can be placed upon the property except with the consent of shareholders holding 75 per cent. of the preferred stock."

The bondholders upon the payment of \$400 per bond will be entitled to receive for it ten preferred shares and eight common shares; or, by depositing a bond with the bankers, without cash payment, the holder will receive two and one-half shares of the preferred stock and two and one-half shares of the common. Holders of preferred stock, upon the payment of \$33.33 1-3 per share will be entitled to receive for each three preferred shares of old stock one preferred share of the new stock and one and one-half shares of the common stock. The holders of common stock, upon payment of \$100 for each 15 shares surrendered, will be entitled to receive for each 15 shares of the old stock one share of preferred stock and one share of common stock. The bonds and stock must be deposited with Kidder, Peabody & Co. on or before July 2. Under this arrangement the necessary \$1,250,000 will be paid in cash.

Definite announcement is made that the Wabash Railroad will commence the running of trains regularly into Pittsburgh on July 2. This road has already made a reduction in passenger rates to St. Louis on account of the fair, and it would not be surprising if it also made material reductions in freight rates on iron and steel products into and out of the Pittsburgh district. A branch is to be built from the main line to run along Carson street, Pittsburgh, and tap the manufacturing plants on the south side of the Monongahela River. By the building of this branch line the railroad will be able to secure part of the tonnage from the mills of the Jones & Laughlin Steel Company.

The statement is made that probably the last silver dollar that will ever be issued by the Government of the United States has been coined. The coinage statement for June will show the coinage of about \$400,000 in standard dollars. These coins are now all completed in the Philadelphia Mint. There is still on hand about 7,000,000 ounces of the silver bullion purchased under the act of 1890. This has been set aside for subsidiary coinage under the provision of the Sundry Civil Appropriation act of March 3, 1903, authorizing the use of this bullion for subsidiary coinage.

Niles-Bement-Pond Machines at the World's Fair.

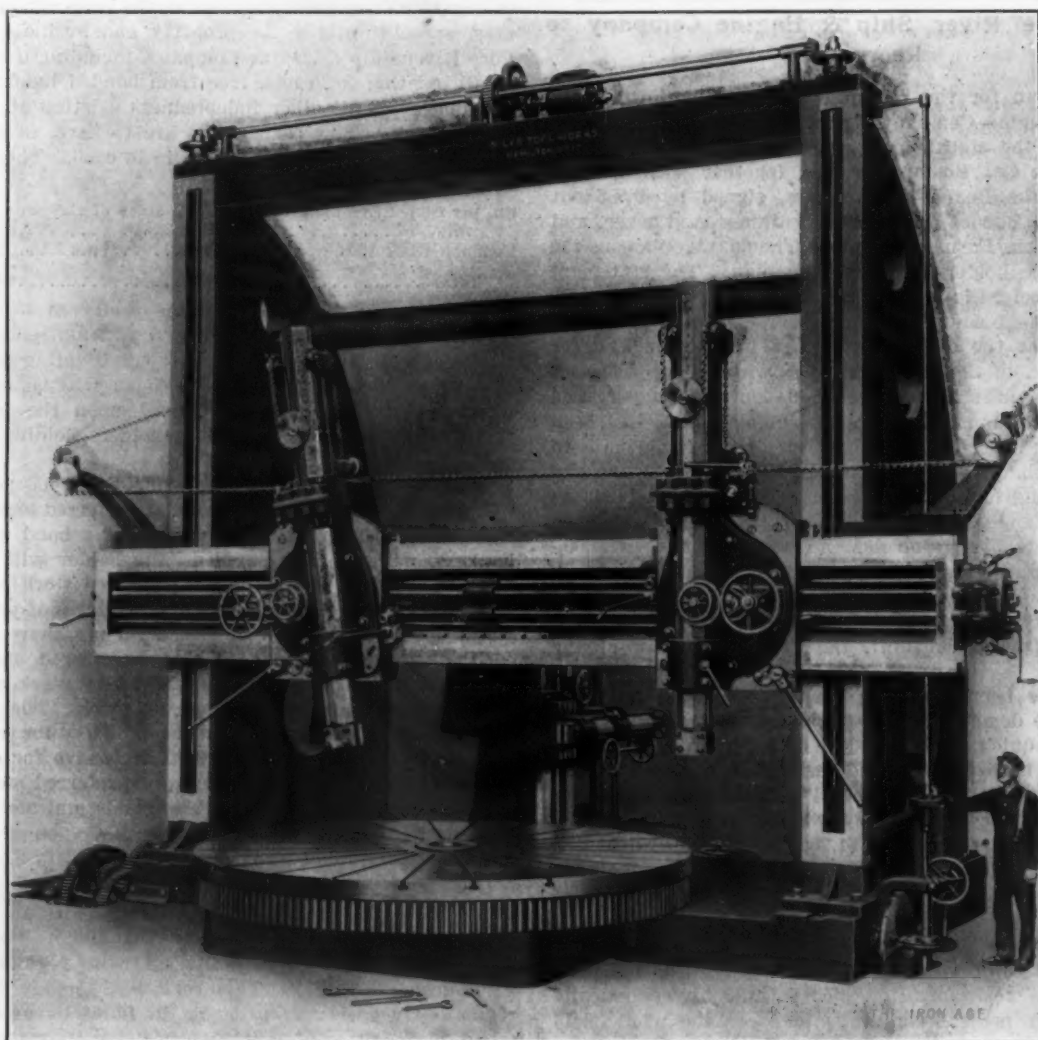
In Sections 17 to 25 of the Palace of Machinery at the World's Fair, St. Louis, the Niles-Bement-Pond Company and the Pratt & Whitney Company have very extensive exhibits. All of the machines shown are either of entirely new design or embody radical modifications of older patterns, making the exhibit one worth a careful examination. As any of the machines may be seen in operation, it is one of the "live exhibits," for the number of which this fair has established a record. The electric drive is resorted to in all cases, and many of the larger machines are driven by individual direct connected motors.

The machines exhibited by the Niles-Bement-Pond Company include a No. 3 Niles heavy double axle lathe;

The Pratt & Whitney exhibit, occupying all of Block 17, includes more than 30 machine tools, besides a complete collection of small tools, gauges and measuring machines. Among the machine tools are lathes of various kinds, including new model turret, engine, tool makers' and bench lathes, automatic screw machine, thread milling machines, drill and cutter grinders, drills and various special machines.

A 40-ton Niles crane, having an 80-foot span, has been installed to serve the middle bay of Machinery Hall.

The installation of the exhibit was attended with many difficulties. Even under the most favorable conditions the erection of 868 tons of machinery is not an easy task. Here everything was new and untried; no overhead crane was available, as the runways on the 40-ton Niles crane did not extend as far as the exhibit,



NILES 20-FOOT BORING AND TURNING MILL WITH REAR TOOL COLUMN.

an 80-inch Niles extra heavy driving wheel lathe (described in *The Iron Age* of June 16); a lathe for turning steel tired car wheels; a 28-inch Pond new model motor driven lathe; a 30-inch Pond rapid reduction lathe, motor driven; a Pond "rigid" turret lathe; a 42-inch and a 72-inch Pond lathe; a 42-inch and a 72-inch Pond forge planer; a 10-foot planing machine; a No. 6 Bement horizontal milling machine; a 26-inch Bement double shaping machine; an 18-inch Bement slotting machine; a 50-inch vertical drill; a 5½-foot universal radial drilling machine; a 6-foot Pond gear driven radial drill; a No. 4 Bement horizontal boring and drilling machine; a heavy horizontal boring and drilling machine; a 37-inch Niles boring and turning mill; a 10-foot Niles extra heavy boring and turning mill; a Niles 20-foot boring and turning mill; a Bement triple pressure hydraulic riveting machine; an 800-pound Bement single frame steam hammer; a 5000-pound Bement double frame steam hammer and a 30-ton trolley.

and there was more or less trouble in obtaining labor. The smaller machines, having been shipped practically complete, were placed in position with comparative ease; but with the larger machines, many of the parts of which formed a carload, a great amount of work was entailed. The total weight of the Niles 20-foot boring and turning mill, which is illustrated herewith, is about 200 tons. Each housing weighs 18 tons. The only means available for lifting these housings was a 15-ton track crane, the track for which was on none too firm a foundation. However, the crane stood the test and the big mill was successfully erected.

The 20-Foot Boring and Turning Mill.

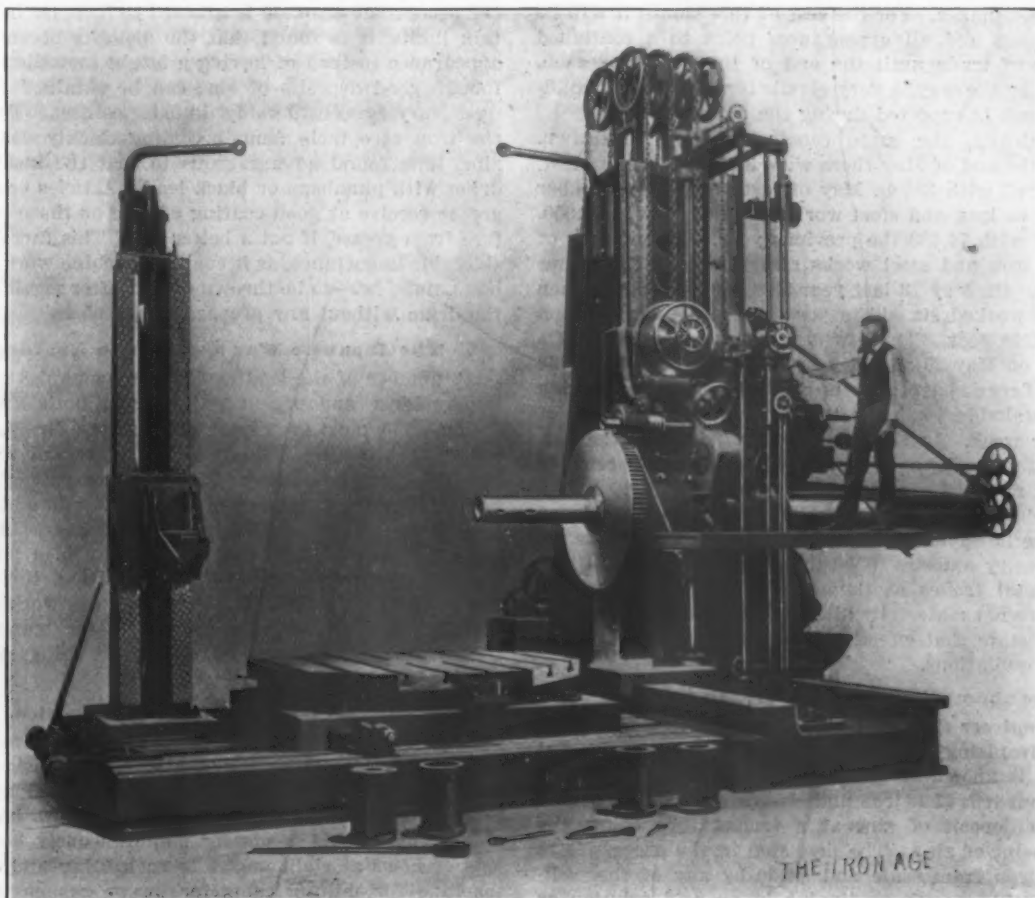
In point of size the two most remarkable machines exhibited by the Niles-Bement-Pond Company are the 20-foot boring and turning mill, with rear tool column, and the heavy horizontal boring, drilling and milling machine. The first has a swing of 20 feet and a great-

est height under the tools of 15 feet. A 20-inch central boring bar with traveling heads is provided, though not shown in the illustration. The bar has independent feeds operated from below, and the head has a rapid power traverse of 12 feet.

The rear tool column, for work on heavy fly wheels, rope wheels, &c., is placed at the back of the mill. It may be adjusted in and out so that diameters from 20 feet down to 14 feet may be turned without overhang of the tool. The tool slide has a 7-inch in and out adjustment, vertical feed, hand feed and quick hand adjustment. It is provided with a taper attachment for turning tapers up to 3 degrees in either direction. The taper attachment is arranged so that the tool may be adjusted for depth of cut and reset without interfering with the attachment. For turning diameters less than 14 feet an auxiliary tool bar may be attached to the

erse of 72 inches and a range of speeds from 1 to 50 revolutions per minute. It is driven either by the face plate gear, to which boring bars and large milling cutters may be bolted, or by a smaller gear, which in the illustration is covered by gear guards. It is provided with boring and drilling feeds variable throughout a wide range. The motor has a wide speed variation, and drives through back gears and sliding gears. The counterweighted saddle has a vertical adjustment by power of 8 feet, and the column a traverse of 12 feet on the bed. Both the saddle and column have power milling feeds with automatic stops and quick power traverse.

The spindle, saddle and column feeds may be changed or reversed, the quick traverse of the saddle or column may be controlled, and the spindle may be started, stopped or its direction of rotation reversed, all from the operator's platform, which is attached to the saddle. The



NILES HEAVY HORIZONTAL BORING, DRILLING AND MILLING MACHINE.

rear tool slide, and when so arranged the tool bar has a horizontal power feed of 30 inches. For facing the inside of fly wheel rims and similar work the auxiliary tool bar may be blocked up at any convenient position near the mill.

The main heads have rapid power traverse, and are particularly strong and heavy. All the arrangements necessary for the easy handling of these parts are provided. The machine is driven by a variable speed motor, and an auxiliary motor is provided for elevating the cross rail. The main driving motor is 80 horse-power, and has a speed variation of 150 to 600 revolutions per minute, which is obtained partly by changing the voltage from 110 to 220 volts and partly by field control. The motor for elevating the cross rail and for the quick traverse of the heads is of 10 horse-power capacity.

The Heavy Horizontal Boring, Drilling and Milling Machine.

The machine shown in the other illustration is designed for boring, drilling and milling work, which is too large to be handled conveniently on other types of machines. The spindle is 9½ inches in diameter, has a trav-

machine is self contained in that the motor and all the driving gear move with the column.

The bed of the machine may be of any length. Attached to it is a floor plate carrying an outboard column and a square table upon which turns an 8-foot octagonal table. The octagonal table has a circular base graduated in degrees, and is provided with four stops in quadrature. These stops can be brought into contact with a test indicator reading in thousandths of an inch, which insures absolute squareness of work being milled. Scales are provided on the bed and columns, and also on the saddle carrying the outboard bearing, thus enabling the spindle to be set without measuring.

The main driving motor is of 30 horse-power capacity at 240 volts. It is designed to be used on a three-wire multiple voltage system of 90, 160 and 250 volts, giving a speed range of 200 to 800 revolutions per minute. The motor for power traverse of the circular table and of the table base is of 6 horse-power capacity and runs at constant speed.

The work is bolted to the table, and at one setting of the work flanges may be faced, surfaces milled and a number of parallel holes drilled and bored. As a mill-

ing machine the horizontal boring, drilling and milling machine is particularly valuable where castings have numerous spots to be finished which are distributed over a large surface, or are difficult to reach, or stand at awkward angles, as in such cases a planer is at a great disadvantage. The rotary table may be used to advantage for finishing surfaces or boring holes which are at fixed angles.

Notes from Great Britain.

A Falling Market.

LONDON, June 18, 1904.—There can be no doubt that everything is sagging—prices are weakening, specifications are being given out very slowly, buying is from hand to mouth, and the consumer has the whip hand of the pig iron maker. For the rest of this month it will be stock taking, and all appearances point to a continued slackness of trade until the end of the holiday season, which is, by the way, a very elastic term. To put it mildly, not much is expected during the next quarter.

Statistically, the same conclusions can be drawn. Thus, at the end of May there were 308 furnaces in blast, as compared with 325 in May of last year. The number employed in iron and steel works on May 21 was 73,650, compared with 74,469 the previous year. The number of shifts in iron and steel works also showed a significant reduction. On May 23 last year 53.6 per cent. of the men employed worked six shifts per week; 50.9 per cent. on May 21 this year. Those who worked under five shifts per week on May 23 of last year were 11.8 per cent. This year the figures have gone up to 15.1 per cent., showing an unmistakable tendency to work a fewer number of shifts per week. In the shipbuilding industries the percentage of unemployment last month was 13.1 per cent., as compared with 8.7 per cent. in May of last year. In the engineering trades during the same period the unemployed percentage has gone up from 3.8 to 6.6 per cent. The tin plate industry appears to be the most prosperous of any in the metal trades at the present moment. Standard prices have not materially altered, but it is almost unnecessary to state that effective quotations are much below standard quotations.

The Sherardising Process of Galvanizing.

The *Engineer* this week gives publicity to a new process of galvanizing, which has now reached a commercial stage. It is known as "Sherardising." The point of interest about it is that iron and steel can be coated with a thin even deposit of zinc at a temperature below the melting point of zinc. The first step in the process is to free the iron from scale and oxide by any of the well-known methods, such as dipping in an acid solution or sand blasting. The articles to be rendered rustless are then placed in a closed iron receptacle charged with zinc dust, which is heated to a temperature of from 500 to 600 degrees F. for a few hours and allowed to cool. The drum is then opened and the iron articles removed, when they are found to be coated with a fine homogeneous covering of zinc, the thickness depending on the temperature and the length of time of treatment.

It will be observed that the temperature required to bring about this result is about 200 degrees below the melting point of zinc. The low temperature required makes the process cheap as compared to the process of dipping in molten zinc, and has the additional advantage that it does not deteriorate iron or steel of small section to the same extent as hot galvanizing. The whole of the zinc is consumed; there is no waste of zinc as in the hot galvanizing process. This new process of dry galvanizing is not limited to the coating of iron with zinc, but it has been successfully applied to coating iron with copper, aluminum and antimony. It has also been applied to coating various other metals—for instance, aluminum and copper—with zinc. Copper and its alloys subjected to this process are, we are informed, case hardened on the surface, and can be rendered so hard as to turn the edge of a steel tool.

The zinc powder used in the process is the zinc dust of commerce, and must not be confused with zinc oxide; it is obtained during the process of distilling zinc from its

ores. Zinc dust at the present time is used for a variety of purposes, and can be obtained in any desired quantity. The average price of zinc dust for the year 1903 was £19 19s. per ton, which is slightly below the average price of virgin spelter. One of its peculiar properties is that it cannot be smelted or reduced to the metallic form under ordinary conditions, even when heated to a very high temperature under considerable pressure. This property is very advantageous for the new process of dry galvanizing, as it does away with the risk there might otherwise be of melting the finely divided zinc by overheating the furnace.

The receptacle in which the zinc dust is placed and heated is preferably air tight, and the air is exhausted so as to prevent the formation of too much zinc oxide, or, if this is not feasible, it is found advisable to add about 3 per cent. of carbon in a very fine state of division. If the percentage of oxide is allowed to increase beyond certain limits it is found that the deposits become dull in appearance instead of having a bright metallic luster, although good deposits of zinc can be obtained from zinc dust varying considerably in composition. To prevent the iron receptacle from becoming thickly coated with zinc, it is found advantageous to coat the inside of the drum with plumbago or black lead. Articles coated with grease receive as good coating of zinc as those which are free from grease, if not a better one. This fact is of considerable importance, as it enables machine work—such as bolts, nuts, &c.—to be thrown direct, after machining, into the drum without any preparation or cleaning.

The Japanese War and British Engineers.

A number of the leading British companies are profiting by large and urgent orders from both Russia and Japan. The most prominent of these are Sir W. G. Armstrong, Whitworth & Co., who, as remarked above, are increasing their facilities; J. I. Thornycroft & Co., who have acquired a new large yard at Southampton so as to be nearer the seaboard, and Vickers, Sons & Maxim, who, with their large capital, are quite in a position to meet all reasonable demands. In addition, the Weldless Steel Tube Company, Birmingham, are working night and day in the execution of orders for marine boiler tubes for the Japanese. The work is being supervised by Japanese officers.

British Machine Tools for America.

The firm of James Spencer & Co., Hollinwood, Manchester, are this week shipping a 30-ton consignment of machine tools for gas engine making. The shipment comprises two cylinder boring machines, a cross boring machine with double heads for simultaneously boring two sets of holes at right angles to each other and a special machine for milling cams for heavy gas engine work. They are being bought on the basis of an import duty of 45 per cent. ad valorem.

Swedish Ore for Germany.

C. E. Muller & Co., Middlesbrough, state that very important contracts for Swedish iron ore for Germany were closed at the beginning of this month. The total quantity sold was 14,000,000 tons, for delivery over a term of years. The works participating in this large purchase are Deutscher Kaiser, Gutehoffnungshuette, Rheinische Stahlwerke and Friedrich Krupp (for the new basic works at Rheinhausen). The ore is phosphoric and will be shipped principally from the well-known deposits in Swedish Lapland. The sellers are Trafikaktiebolaget Graengesberg, Oxelsund, and the contracts were concluded by their representatives, Wm. H. Muller & Co., Rotterdam, and L. Possehl & Co., Lubeck.

A New Testing Machine.

A testing machine of unusual interest has been constructed by Buckton & Co., Leeds, from the design of J. Hartley Wicksteed, and sold to the French Government. It is destined for research work on the strength and behavior under load of metals and materials used in the manufacture of ships, engines, machinery, bridges and structures of all kinds, also chains, wire and hemp ropes as used in ships and mines and for lifting and hauling generally. So designed that it will make tests on the smallest and most delicate specimens, it will also take in

a full sized column or strut. It will test in tension a chain cable, wire or hemp rope, eye bar, riveted joint or any kind of tension member up to 80 feet long and 3 feet 3 inches square, and will stretch or break such specimens with a load up to 300 tons, and it will also test in deflection and will take in any kind of rolled joist, riveted girder or other form of beam up to 20 feet between supports, 6 feet 6 inches deep and 3 feet 3 inches wide, and will load it in the center up to 300 tons. The machine will also test in torsion, punching and shearing. The effort exerted in carrying out any of these tests is duly shown by the machine and the results are autographically recorded on a diagram. The total length of the machine is 120 feet and its weight about 150 tons.

S. G. H.

The New Britain Stock Rack and Bench Leg.

The accompanying illustrations show two new products of the New Britain Machine Company, New Britain, Conn. Fig. 1 is a stock rack, designed for holding merchant bars of steel and other material of the form shown, and has a capacity of upward of 7 tons without overloading. Three uprights are spaced 6 feet apart

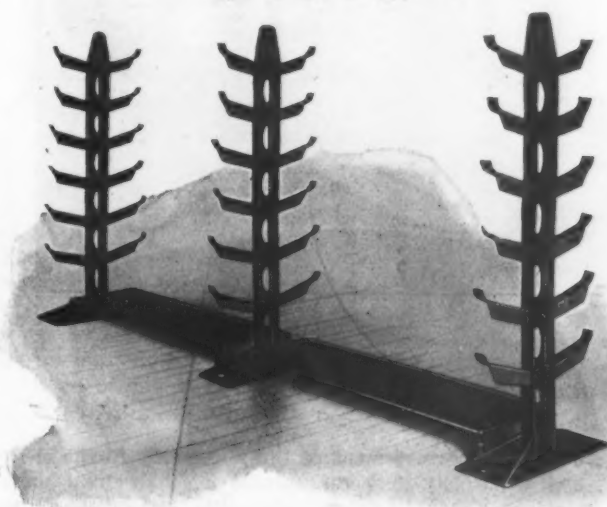


Fig. 1.—The New Britain Sectional Stock Rack.

so as to support equally the weight of merchant bars 18 feet long. The unit idea is carried out in the construction, making it possible to increase or decrease the capacity of the rack to meet changing requirements. The rack illustrated carries six double gradated hooks on each upright, but more or less may be used, as desired. The hooks are of wrought steel, which is strong under bending and tension strain, such as the hooks are subjected to, while the distance pieces between the hooks are of cast iron, the strain in this case being one of compression. The units are held together by tension bolts, and may be easily knocked down for transportation.

The curved ends of the hooks help to prevent the load from spilling, and are also a safeguard against overloading. It is calculated, however, that the entire space between the hooks may be filled without producing undue strain on the rack. Owing to the nature of the material of which the hooks are constructed, they would bend and give warning in case they were overloaded. Grading the sizes of the hooks, the larger ones being at the bottom and the smaller ones at the top, facilitates the lifting out of the stock where hoist and runway service is employed. The number of the spaces is sufficient to accommodate quite a range of sizes, so that it is not necessary to mix many sizes in one space. The principal advantage of the rack is that it does away with the drawing out of stock endwise, thus saving a great amount of space which would otherwise be necessary. The detachable pans which connect the standards of the uprights are useful for holding short pieces. The rack is also made in a

wall style, which may be used when it is desired to utilize wall space.

Fig. 2 shows a new pattern of cast iron bench leg. One trouble with the usual form is that it frequently depends partly upon the wall for its support. This bench leg is self supporting, and may, therefore, be placed in any part of the room. A provision made for a stringer at the rear, which sets in a pocket, as seen in the illustration, adds considerable to the strength and rigidity of the completed bench. It also allows the legs to be placed as far apart as 8 feet, without sacrificing stiffness, and increases the stability of the backboard of the bench. The front board of the bench is usually heavier for the support of vises, &c., and the casting is formed, as may be seen, to accommodate the thicker board. When a heavier board is unnecessary a light board may be used and blocked up to make it flush with the back board. Bung head bolts are used to fasten the boards to the legs, the heads of the bolts being flush with the upper surface. Fins under the heads of the bolts prevent them from turning. The bolts are inserted by means of a Forstner bit. The cross piece at the bottom of the leg serves for the support of a longitudinal plank, where such is desired.

The fact of the bench being self supporting is attended



Fig. 2.—The New Pattern Bench Leg.

with two advantages. For instance, it may be placed at, say, 3 inches from the wall, as the makers recommend, which allows the space beneath the bench to be more easily reached by water from the sprinkler system in case of fire, and also allows the hot air from steam coils, such as are usually placed along the walls, beneath the windows, to circulate to the best advantage. Incidentally this tempers any cold draft that may come from the window, while still another advantage is that the full force of the heat does not strike the legs of the workmen, as it does where the bench touches the wall. The bench also lends itself handily to corner bench construction.

Rebellion in the Amalgamated Association.—For months there has been much dissatisfaction in the ranks of the Amalgamated Association, particularly among the sheet and tin plate workers. The course of President Snaffer in agreeing to a reduction of 20 per cent. in the wages of sheet and tin plate workers without first consulting the men was very severely criticised, and threats were made at the time that he would not be re-elected. However, he was maintained in office, but the dissatisfaction has not subsided by any means. A meeting of the sheet mill men in the Cincinnati, Covington and Newport districts was held last week, and steps were taken to form a new organization. It is not unlikely that a large number of the sheet and tin plate men will withdraw from the association and form an organization of their own.

The Flather Gear Cutter.

A new line of gear cutters, designed for the rapid production of spur gears, has been brought out by the E. J. Flather Mfg. Company, Nashua, N. H., a concern recently organized to market the machines. It is built in two sizes, to cut spur gears up to diameters of 30 and 36 inches, respectively, and faces as wide as 5 inches and

the cutter can be returned positively to any previous position.

The cutter spindle is hardened and ground and runs in a phosphor bronze sleeve. It is driven by a worm gear 7 inches in diameter and a septuple worm which runs in a bath of oil and is splined on the shaft N. On the bronze sleeve is a heavy nut operated by a spanner wrench by means of which the cutter may be easily

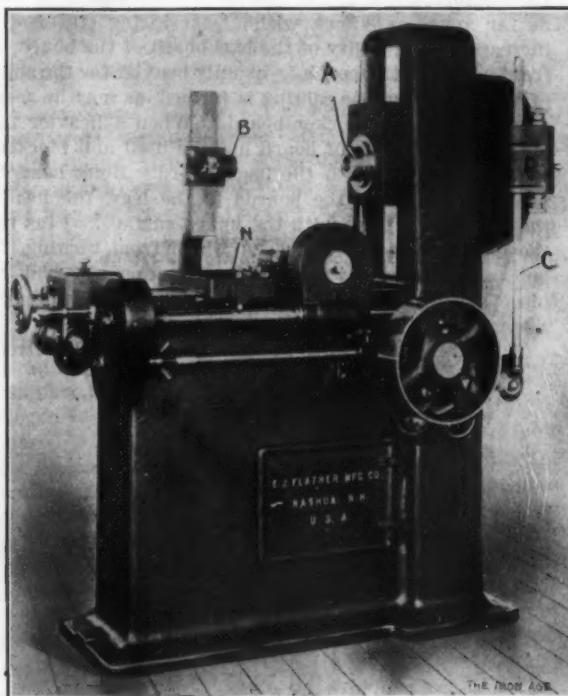


Fig. 1.

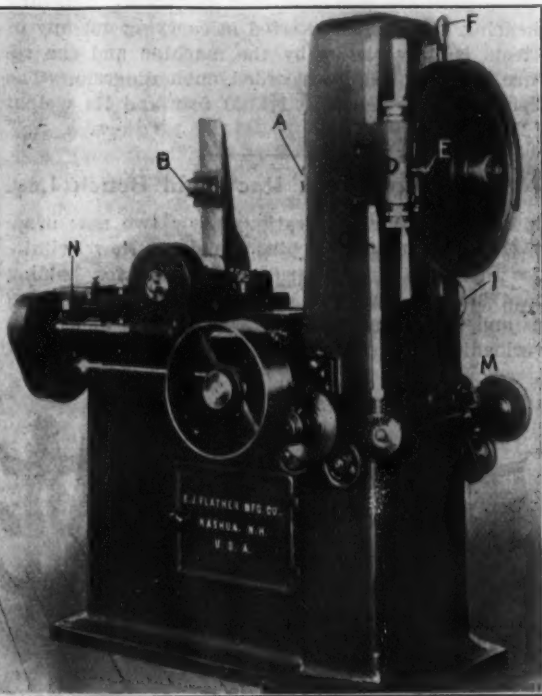


Fig. 2.

THE FLATHER GEAR CUTTER.

4 diametral pitch. The machine is of heavy proportions so that it will work without jarring or chattering and produce smooth gears of either fine or coarse pitch. Several mechanical ideas, new to machines of its type, are embodied in it, notably among which are the method of indexing, the device for centrally locating the cutter and the method of binding the work head in position.

As seen in Figs. 1 and 2, A is the work spindle, which supports one end of the mandrel carrying the gear blank and rotates it during the operation of indexing. B is an outboard support adjustable on its guide, as is also the work head A, to accommodate gears of different diameters. The indexing wheel, seen in Fig. 2, is driven by means of a positive clutch. Figs. 4 and 5 show nearer views of the gears from the front and rear, which drive the indexing mechanism. An auxiliary shaft carries a segmental gear, J, Fig. 4, integral with the lever arm K, the first meshing with the pinion on the shaft with the clutch, while the lever arm engages a cam in the face of the gear L. After the cutter has passed through the work and returned to the end of its stroke a trip is operated, setting the segment and lever arm in motion, the segment operating a clutch by means of a cylindrical cam on its shaft, while the lever arm releases the cam L, permitting the gear to make a single revolution, when the clutch is again thrown out and the indexing ceases. The indexing mechanism is thus positive, and is securely locked in each position, so that it cannot operate after the cutter has entered the work, nor can it index more than the space for which it is set. Changes of speed do not affect the indexing. The worm which drives the index wheel can be disengaged from the driving rod C by a toothed clutch in the box D. This clutch is operated by the lever E after loosening the screw at the bottom of the box. The work may be revolved in either direction and very fine adjustments are possible. By means of change gears, M, Fig. 2, three changes of indexing may be secured. The indexing mechanism may also be operated by hand, and there is always the assurance that

adjusted, the movement of the nut giving to the sleeve and consequently to the spindle a longitudinal movement in either direction. The outer end of the cutter spindle is supported in a bearing to prevent its deflection during cutting.

The head carrying the work spindle is arranged so that it may be firmly clamped in position by means of a binding nut operated by the lever F, Fig. 2. The construction of the work spindle may best be seen in Fig. 3.

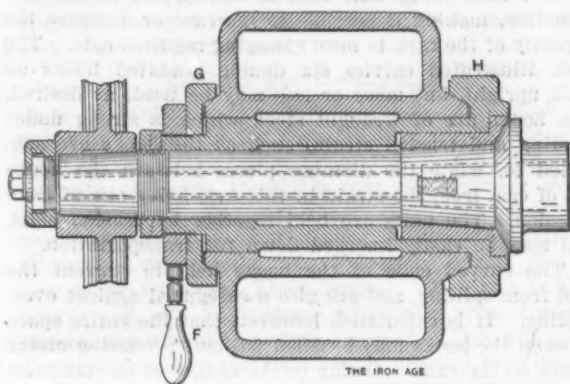


Fig. 3.—Detail of the Work Spindle.

where F, as before, is the lever which clamps the head. As will be observed, the tightening of this nut draws the collars G and H firmly against the inclined faces of the guides on the column. This method of clamping is entirely independent of the work spindle, so that the latter cannot be cramped, no matter how firmly the head is bound to the ways. The head may be raised or lowered by means of a screw in the center of the column, driven by bevel gears and the hand wheel I, Fig. 2. The raising and lowering mechanism is provided with a micrometer adjustment graduated to thousandths of an inch.

The feeding of the gear cutter is performed in a manner resembling that of machines of similar type. The forward feed in action during the cutting of the stroke is operated by means of a worm and worm gear through a positive clutch. The return of the carriage is accomplished by a friction clutch and is very rapid, re-

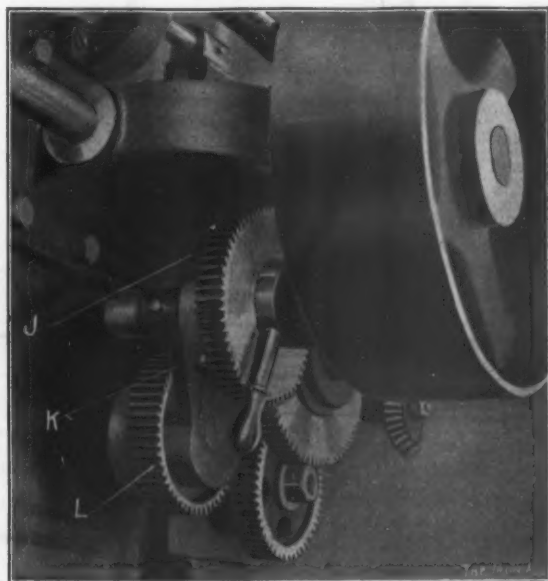


Fig. 4.—Indexing Gears Seen from the Front.

ducing the time consumed for returning and indexing. The length of the cut may be regulated by adjustable sliding dogs, which may be rotated out of position so that the carriage may be run back clear of the work when desired. The driving pulley is intended to run at 300 revolutions per minute.

None of the motions of the machine depends upon

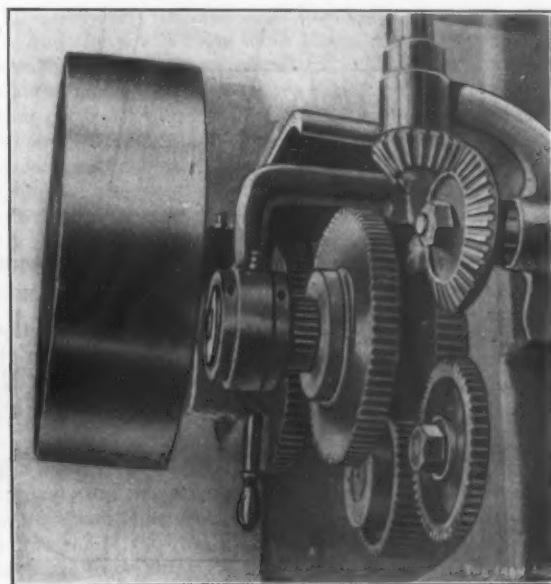


Fig. 5.—Indexing Gears Seen from the Rear.

momentum, as is shown by the fact that they may be performed by pulling the belt very slowly by hand. The carriage is heavy, has wide bearings on the bed rigidly gibbed and is provided with felt wipers to prevent chips and dust from working between the wearing surfaces. The work spindle has a large crucible steel forging with a No. 12 B. & S. taper. Both the work arbor and the cutter arbor are drawn into taper sockets by draw in bolts, which also eject them. The machine complete weighs 2500 pounds.

The United States Cast Iron Pipe & Foundry Company.

The annual report of the United States Cast Iron Pipe & Foundry Company, which has just been issued, shows some decrease in earnings, but the reduction is, however, considerably less pronounced than in the case of many of the steel companies. Following is a comparative statement of the company's earnings:

	1904.	1903.	Change.
Gross income.....	\$1,303,810	\$1,370,542	— \$66,732
Interest on bonds.....	\$71,640	\$68,555	+ \$3,085
Improvements, &c.....	125,000	105,836	+ 19,164
Total expenses.....	\$196,640	\$174,391	+ \$22,249
Balance	\$1,107,170	\$1,196,151	— \$88,981
Other income.....		32,573	— 32,573
Total income.....	\$1,107,170	\$1,228,724	— \$121,554
Dividends	500,000	500,000	.....
Surplus	\$607,170	\$728,724	— \$121,554
Previous surplus.....	853,724	671,718	+ 182,006
Total surplus.....	\$1,460,894	\$1,400,442	+ \$60,452
Reserve for work. cap...	728,724	546,718	+ 182,006
Final surplus.....	\$732,170	\$853,724	— \$121,554

The general balance sheet, as of May 31, shows:

Assets—	1904.	1903.	Change.
Cost property and plant.....	\$24,089,260	\$24,126,492	— \$37,222
Treasury stock.....	347,555	347,555	.....
Am. P. & F. Co. bonds...	423,347	374,087	+ 49,310
Cash	712,914	420,745	+ 292,169
Accounts and bills rec...	2,239,476	2,503,822	— 264,346
Materials and supplies...	1,649,353	1,680,018	— 30,665
Totals	\$29,461,905	\$29,452,659	+ \$9,246

Liabilities—	1904.	1903.	Change.
Preferred stock.....	\$12,500,000	\$12,500,000	.....
Common stock.....	12,500,000	12,500,000	.....
Am. P. & F. bonds.....	1,500,000	1,500,000	.....
Accounts payable.....	560,864	1,156,554	— \$595,690
Additional working capital	1,565,269	836,545	+ 728,724
Improvements	103,602	105,836	— 2,234
Surplus account.....	732,170	853,724	— 121,554
Totals	\$29,461,905	\$29,452,659	+ \$9,246

The stockholders of the company, at their annual meeting, elected the following directors: Colgate Hoyt, George B. Hayes, Geo. J. Long, A. C. Overholt, C. E. Burke, E. R. Thomas, B. F. Overholt, A. F. Callahan, A. N. Brady, E. C. Fuller, P. J. Goodhart, David Giles, W. T. C. Carpenter and B. F. Haughton. The board organized by choosing the following officers: President, George B. Hayes; first vice-president, George J. Long; second vice-president, A. F. Callahan, and secretary and treasurer, E. F. Haughton.

The Bar Iron Wage Scale.—Lodges of the Amalgamated Association in the Youngstown district, in which the men are employees of the Republic Iron & Steel Company, have received notice from President Shaffer instructing them to continue at work under the present scale, which expires on June 30, until a new wage scale is arranged. This notice is in accordance with a special arrangement providing for a Board of Conciliation and a continuation of the existing scale until such time as the board has reached a decision with reference to next year's wage scale. By the terms of this agreement the men are to select a representative and the Republic Company another, a third to be selected by those two men, and the three to constitute a Board of Conciliation. The Amalgamated Association has appointed M. M. Garland of Pittsburgh as its representative. Mr. Garland is an ex-president of the association, but for some years has been surveyor of the port in Pittsburgh. He is highly regarded by the manufacturing interests and will make a very acceptable member of the board.

The Pittsburgh Shovel Company.—The Pittsburgh Shovel Company, Frick Building, Pittsburgh, Pa., are just completing the erection of a new forge department at their works at Leechburg, Pa. The new work includes an additional forge shop 40 x 60 feet, in which a complete list of modern drops, hammers, &c., for use in the manufacture of welded shovels will be installed. The new shop will be ready for operation about July 15.

The Philips Pressed Steel Pulley.

Considerable interest is being manifested in a new pressed steel pulley, the invention of Ferdinand Phillips, senior partner of the firm of Phillips, Townsend & Co., and proprietor of the Phillips Pressed Steel Company, Philadelphia, Pa., which will market the new departure. It will be seen from Fig. 1 that the general design is pleasing and in accord with practical demands for correct construction and distribution of material. A close examination of the construction of the pulley indicates



Fig. 1.—Perspective View of the Philips Pressed Steel Pulley.

that it is fundamentally new in its details and may not be regarded as an imitation or substitute for anything now on the market. It is claimed to be light, strong and capable of a wide range of sizes, easily manufactured by simple means.

The hub of the pulley is made of cast iron, resembling the conventional hub of a split cast iron pulley, thereby preserving the advantages of such hubs and admitting the use of all mechanical appliances heretofore employed in cast iron pulleys. The hub is made in halves and may be secured to the shaft by compression only, or, if desired, by set screws or keys to provide for severe service. Bushings, such as are shown in Figs. 2 and 3, are supplied to suit all sizes of shafts.

The arms of the pulley are of triangular truss pattern, a construction that is both scientific and practical. The material is placed farthest from the neutral axis near the hub, where the strain upon the arms is greatest. Their connection with the hub is effected by countersinking the metal of the arm into the cast iron of the hub, as shown in Fig. 4, relieving the rivets of all shearing strain. Each pair of arms converges from the hub toward the rim and is united into one unit near the

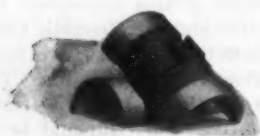


Fig. 2.



Fig. 3.

Two Forms of Bushings Used.

rim by means of a gusset plate, similar to those used in all common truss constructions. In this case the gusset plate is designated as a "dowel plate," on account of its peculiar engagement with the central rib of the rim, which has the effect of relieving the rim rivets also of shearing strain.

To provide strength for transverse strain the arms are corrugated. All together, it may safely be considered that the requirements for strength in the pulley have no

limit in the construction of the spider. The material selected for this purpose may be gauged from the finest to the heaviest gauge and in suitable widths. An important feature of this new spider is its function as a

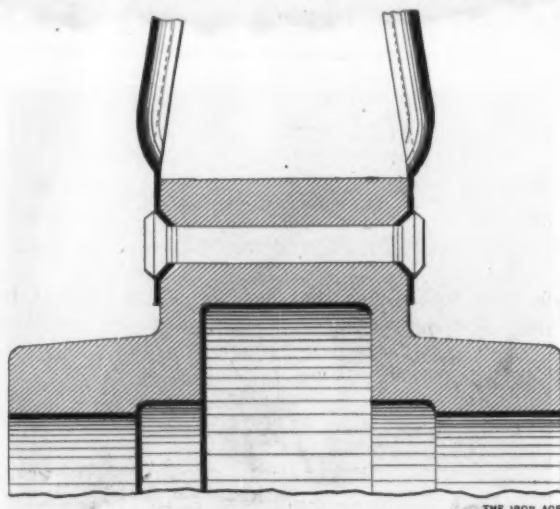


Fig. 4.—Manner of Securing the Arms to the Hub to Relieve the Rivets of Shearing Strain.

power transmitting agent on the principle of a suspension wheel connected tangentially with the hub, an improvement over radial arms for pulleys on which the greatest strain is applied tangentially to the rim.

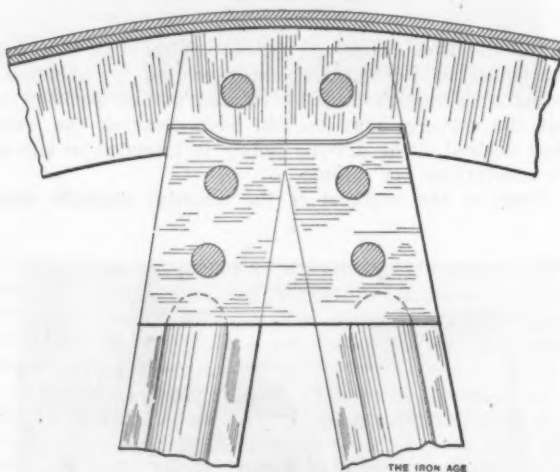


Fig. 5.—Manner of Joining Rim and Spider to Avoid Shearing Strain on the Rivets.

The rim of the pulley is also novel in construction. It is formed of sheet metal with a cross section in the shape of a T, the head of the T being the face of the pulley. At the edges the metal is doubled over itself and

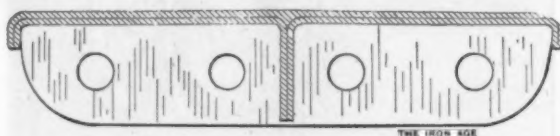


Fig. 6.—Section through the Rim.

finally bent in a direction perpendicular to the face, forming the central rib, as shown in Fig. 6.

The weakest point of all parted pulleys is where the two halves are joined together, and unless care is taken to keep the abutting edges properly registered the life of the belts is impaired by chafing over the sharp edges. In the Philips pulley the rim lugs are integral with the rim, as shown in Fig. 4, and extend the width of the pulley, making the joint unusually strong, and no sharp edges occur at the joint.

Smaller details in the pulley have also been given attention, as evidenced in the manner of putting the

two halves together. Usually two wrenches are required for the operation, but in this pulley channel bars extending under the heads of each row of bolts prevent the

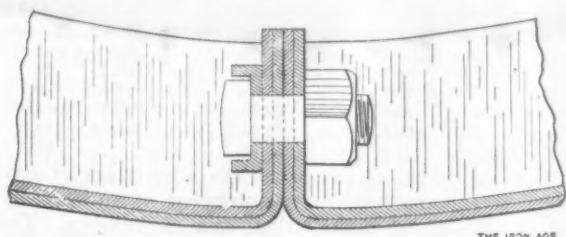


Fig. 7.—Manner of Joining the Two Halves at the Rim.

heads from turning, so that one wrench is all that is needed. The several parts of the pulley are manufactured separately and of various gauges, from which finished pulleys may be assembled to suit all conditions.

Lake Iron Ore Matters.

DULUTH, MINN., June 25, 1904.—Mining men all deny the stories that Mesaba Bessemer ore has been sold at lower lake delivery ports at \$2.50, and there is nothing to indicate that any such sales have been made. It would be the height of foolishness for any one to sell at such a price. Sales are slow, but there seems to be more inquiry than earlier in the year, and all mining interests look for a good summer and fall.

The negotiations for 50,000 tons of Bessemer pig iron, between the Zenith Furnace Company, Duluth, and the Lake Superior Company of the Sault, have expanded, and a deal is now pending whereby the tonnage will be materially increased and the extent of delivery run over a very much longer period.

The pressure relieved, ore traffic sprung into full tide with a wonderful jump. Ships arrived at upper lake docks in such numbers that it was an impossibility to care for them all; the roads put on summer schedules of trains, so that in a few days they had their service more than doubled, and at mines steam shovels and stock piles were immediately called into operation day and night. But even this speed did not seem to satisfy shippers, and there has been some sharp correspondence between them and railway managers, who, while they will be able to move with ease all ore scheduled for the season, cannot get it all to docks in a week, as the shippers seem to expect. Head of the lake roads have more trains in service than any other lines. The Duluth & Iron Range has now 26 ore train crews in commission, and is delivering to docks at the rate of from 30,000 to 35,000 tons daily; the Duluth, Missabe & Northern has 23, and is delivering about as much and shipping up to 50,000 tons a day, and the Great Northern has a smaller number. As it serves independent mines, the latter road is not getting ore quite as fast as the two United States steel lines. Aside from Mahoning and Stevenson mines, there are few on the line of the Great Northern that are doing much yet. So slow have been these independent mines that some ships have been here a week or more awaiting cargoes from them. The Mahoning and Stevenson are shipping very heavily. On old ranges stock piles are melting down, but frost is already being encountered in the interior of the piles; the daily hoists have increased, and boats are taking as much ore as can be moved to docks. At Ishpeming three steam shovels are working in stocks, and at Negaunee there are two. The larger mines at Ironwood and Bessemer, at Iron Mountain, Norway and Iron River are shipping both from stocks and from their hoists.

No attempt has been made to lower any records in loading the new "Augustus B. Wolvin." It took all day to put aboard the ship's 10,000-ton ore cargo. The vessel went light from Duluth to Two Harbors, and in consequence her water ballast compartments were used. Pumping these out, the usual complement of old overalls, shoes and machinists' hats were found in the valves, and it required so much time to keep the pumps working that the docks lost time. Another trip, and she will probably lower all records for rapid loading.

No agreement has been reached as to freights for the year. Shippers want to pay 70 cents a ton, while vessel-men demand 80 cents. If not conceded, they claim, they will lie by for a while. But there is a very fair profit to a big modern ship in 70 cents a gross ton, and it is quite probable that this rate will prevail for season contracts.

All mines of the Vermillion range, excepting Soudan hard ore, which have been idle since April 20, have resumed; Sibley, Savoy and Zenith a week ago, and Chandler and Pioneer this week. These last two mines closed because the men did not want to work under their superintendent, the others on account of the late opening of navigation. Now the men are very willing to work under anybody. There has been no change or discussion of a change in the wage scale. About 1100 men have resumed wage earning at Ely, where these mines are located.

On the Mesaba the list of active mines has increased, although Kinney of the Republic Iron & Steel Company has closed indefinitely. There may be shipments from this property later in the year. Bessemer shaft of the same company has started shipments for the first time in years. Newspaper statements that the State Auditor was to make leases on its lake beds are incorrect. The auditor tells me that he has not yet decided what he will do. Because of the rulings of the State courts, the question is just where it was two years ago, when it first came up. The maps show that one lease has been given on a lake bed, in the center of Carson Lake, in Section 10, T. 57, R. 21. But Carson Lake is not recognized as a body of water by the Government, is not officially known as a lake, and has never been meandered, so that leases upon its surface are like any others on lands adjoining. The question of lake beds did not come up in connection with it. If the State finally decides to give exploring and mineral leases to lake beds, lessees will be subject to damages if they interfere with the water level, and, if there is no public means of access to the lakes, will be obliged to get to them as best they may.

On account of strikes at Sydney, orders for immediate shipment of ore from the Mesaba for the Dominion Iron & Steel Company have been recalled.

On the Gogebic range there is a marked improvement in business conditions. At Sunday Lake, both Brother-ton and Sunday Lake mines are again running full force and shipping heavily to docks. At Ironwood, B shaft, at Norrie, and No. 5, at Aurora, which latter has been idle since last fall, are open, and other shafts have been added to the active list. Shovels are working at Norrie, Pabst, Newport, Colby, Ashland, Aurora, Tilden and Montreal.

On the Menominee range, at Riverton mine, which has been idle some time, resumption will shortly take place. Men are being added frequently to the force at Hemlock, which will make a good shipment this year. Large shipments are under way from Crystal Falls and Tobin. There will probably be a resumption in the Cascade district before long, when Richmond, belonging to M. A. Hanna & Co., will begin work. It is an open mine pit, producing a siliceous ore that is desirable as a mixture.

D. E. W.

Revision of Freight Schedules on Iron and Steel.—

A special meeting of the Committee on Iron and Steel Rails was held in Buffalo, June 24, to make a necessary revision of freight rates in the territory of the Central and Trunk Line associations upon iron and steel rails and steel products. About 60 prominent freight officials were present, representing the steel carrying roads, members of the Central Freight Association and the Trunk Line Association. Dissatisfaction with the existing rates had developed at some of the steel producing points embraced in the schedule because of undue advantage claimed to be secured to Buffalo and some other centers. The rates from Chicago, Lorain, Huntington, W. Va., and Buffalo were considered, and a number of changes quite numerous in the aggregate were adopted. The rates from Buffalo remain practically unchanged; but the rates from over 400 other points were revised to meet the Buffalo rates. An adjournment was taken until October, when another meeting of the committee will be held in Buffalo.

The Knowles High Speed Motor Driven Pump.

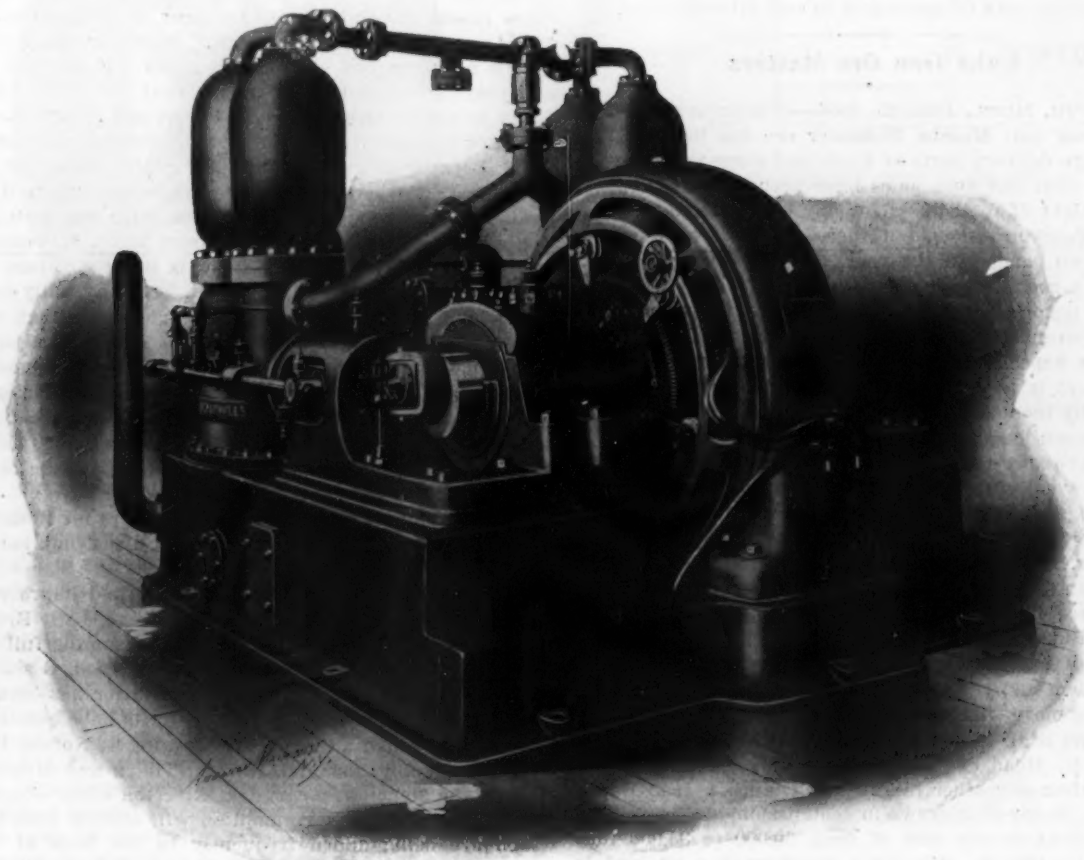
One drawback of electrically driven pumps has been the necessity heretofore of toothed gearing or belts to transfer the power from the rapidly revolving motor shaft to the slow moving crank shaft of the pump. The use of toothed gearing is often objectionable on account of noise, and either arrangement adds to the weight and size of the pumping unit. In the pump illustrated herewith these objectionable features have been eliminated by connecting the pump plungers to cranks mounted directly upon the shaft of the motor.

The capacity of the pump is about 250 gallons per minute against 1000 feet head when running at a speed of about 300 revolutions per minute. Its mechanical efficiency is over 93 per cent., approximating closely that of the best types of large steam pumping engines. The

Test of Blake-Knowles High Speed Duplex Pump, 3½-Inch Plungers, 5½-Inch Stroke, Direct Connected to a General Electric 100 Horse-Power Six-Pole 200-Volt Shunt Motor.

Revolutions per minute.	Motor Input. Watts.	Gallons water delivered.	Pressure in pounds.	Horse-power of pump.	Efficiencies.		
					Motor. Per ct.	Pump. Per ct.	Motor and pump. Per ct.
280	28,800	237	110	32.63	86.5	90.1	78
280	40,600	237	215	48.94	89	92.36	82.2
280	52,550	235	321	62.25	90.1	93.66	84.4
280	60,200	234	425	74.53	90.9	92.74	84.3
309	58,800	232	496	71.79	...	...	83.3

This new form of pump has the advantages of simplicity of construction, the requirement of small space and cheapness of installation and attendance. The pumps are built by the Blake & Knowles Steam Pump Works, 114 Liberty street, New York City, in capacities of from 200 to 4000 gallons per minute and for heads varying from 100 to 2000 feet. One of these pumps, op-



THE KNOWLES DUPLEX DIRECT CONNECTED MOTOR DRIVEN PUMP.

pump is of the duplex type, the cranks at the opposite ends of the motor shaft being set at right angles to each other. The plungers are of the outside packed pattern, and the two plungers in each chamber are connected by side rods. The plungers are 3½ inches in diameter and have a stroke of 5½ inches. The pump and motor are mounted upon a rigid box girder frame and the unit is self contained, occupying a relatively small space. It contains many novel features of construction, and careful attention has been given to the design of the internal parts, as well as to the running parts and oiling devices.

The results from an accurate test of the pump are given in the accompanying table. The volume of water pumped was measured by means of a carefully constructed and calibrated Freeman nozzle, and all gauges were tested before and after the test by means of a weight gauge tester. The pressure at the nozzle was measured by a mercury column connected to a piezometer chamber. Under the greatest pressure the pump showed a remarkably high volumetric efficiency. The operation was practically noiseless under all conditions and was unaccompanied by shock or heating.

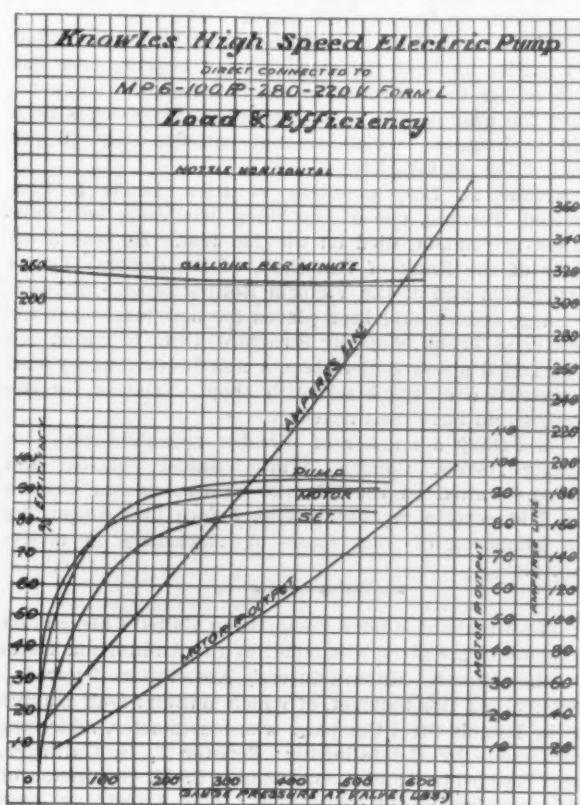
erated by a direct current motor, is being exhibited in the space of the General Electric Company at the St. Louis Exposition.

The Master Car Builders' Association, at their annual convention in Saratoga, N. Y., last week, elected the following officers: President, W. P. Appleyard, Pullman Company, Chicago; first vice-president, Joseph E. Buker, Illinois Central, Chicago; second vice-president, W. E. Fowler, Canadian Pacific, Montreal; third vice-president, George N. Dow, Lake Shore & Michigan Southern, Collingwood, Ohio; secretary, Joseph W. Taylor, Chicago; treasurer, John Kirby, Adrian, Mich.

About 50 large photographs, taken along the line of the new Sanitary and Ship Canal of Chicago, have been added to the exhibit of the Sanitary District of Chicago in the Liberal Arts Building, St. Louis Exposition. Topographical models show how the canal has been completed from Chicago to Joliet, and the photographs illustrate some of the problems of engineering which have been overcome.

Mechanical Draft for the Boiler Plant at the St. Louis Exposition.

There are probably no two buildings within the bounds of the Louisiana Purchase Exposition that are more interesting, or are more thoroughly inspected by the throngs of visitors, than the Machinery Hall and its nearest neighbor, the Steam, Gas and Fuels Building. The central location of the first, the large area of ground which it covers, and the character and number of exhibits which fill it, make it one of the most important edifices on the ground. The Steam, Gas and Fuels Building, while it does not cover nearly so large an area, is, nevertheless, important, as it contains the immense boiler plant which furnishes power for the entire exposition. Forty thousand engine horse-power is furnished by engines located in one end of the Machinery Building, while the entire space taken by the boilers which supply them



Load and Efficiency Curves from the Knowles Electric Pump.

occupies a considerable part of the 100,000 square feet of floor space in the Steam, Gas and Fuels Building.

On approaching the exterior of this latter building one's attention is attracted by the short steel stacks arising from the roof—quite a contrast to the tall stacks used at Paris and some of the other expositions, and, of course, indicating the use of mechanical draft apparatus. The fans and engines for the mechanical draft were furnished by the Buffalo Forge Company of Buffalo, N. Y., for a total of 16,600 horse-power in boilers of various types. The stacks mainly noticeable and referred to above, are for the horizontal boilers only, the upright boilers, of which there are a number, having each its own separate and much smaller smoke pipe.

All of the boiler plants are of special interest, not only on account of the large capacity of batteries served, but because of the fact that they are expected to run continuously at from 25 to 50 per cent. above rating. This requires an intense draft and fans running at unusually high speeds for such large units. Wherever possible duplicate fans have been installed, each one being of sufficient capacity to handle the entire load. The fans are driven by direct connected Buffalo horizontal engines, and a rigid substructure is employed to support the engines and outboard bearings, which carry the weight of the overhung blast wheel. A large bowl is provided in the engine side of the fan housing and the

substructure is extended into this space, allowing a water cooled, self oiling bearing to be placed close to the center of gravity of the wheel. The fans are heavily built and braced to support the weight of the stacks, which have ornamental tops and are built of $\frac{1}{4}$ inch and 3-16 inch plate.

The first battery to be installed consisted of eight 400 horse-power Heine boilers, which, when running at 25 per cent. overload, will deliver 4000 horse-power. For this battery two 240-inch Buffalo fans, with 14-foot blast wheels, $5\frac{1}{2}$ feet wide, are used, each driven by a 14 x 14 inch center crank engine. The maximum speed is about 143 revolutions per minute, and, to run economically at large variations in load, the eccentric is controlled by a link motion adjustable while the engine is running. The throttling governors vary the speed, and to secure any desired draft pressure the governor mechanism may be quickly adjusted for the required speed, and the link motion set to secure the earliest possible cut-off. This feature has been adopted for some time on all large induced draft installations made by the Buffalo Forge Company, and insures economical operation at low speeds.

There are three independent groups of Cahall boilers of different types. The first two groups each consist of four 508 horse-power boilers, which will be run up to 50 per cent. overload, and, on account of lack of space, it has been impossible to furnish duplicate fans. Each of these groups is provided with a 210-inch fan having a blast wheel 12 feet 4 inches in diameter and 43 inches wide, driven by a 12 x 12 inch engine, at 220 revolutions per minute maximum. The third group of Cahall boilers is of approximately the same capacity as the Heine group and the apparatus is of the same size.

The most prominent exhibit of foreign boilers is shown in the group including the Belleville and Niclausse types, the rated horse-power of which will be 1700. As it is expected that these marine boilers will be tested at a large overload, the induced draft fans, which are in duplicate, are designed for 2550 horse-power each and will run at 175 revolutions per minute. These fans have blast wheels 12 feet 4 inches in diameter and 4 feet wide, driven by direct connected 12 x 14 inch engines.

All of the engines are of the piston valve type, with removable bushings, forged steel shafts and crossheads, and are of the same design and finish as regularly furnished for similar work by the Buffalo Forge Company.

High Art Tubing.—A unique way of introducing their product to the public has been resorted to by the Ellwood Ivins Tube Works, Philadelphia. They are sending to those in the trade likely to be interested a card, to which is attached a small sample of their seamless steel tubing. The card gives the dimensions of the sample—namely, outside diameter, 0.316 inch; inside diameter, 0.228 inch—and states that it is sent for examination and criticism as representing a line designated as high art tubing, on account of the unusual accuracy which is attained in its manufacture. Attention is drawn to the fact that this is but one of the many sizes made by the concern, there being others many times bigger and still others smaller, down to a size not much greater in diameter than a horse hair. The latter are made for such uses as hypodermic needles. Tubes a little bit larger are made for the movements of the highest grade watches. The purpose in producing tubes of such refinement, true to the thousandth of an inch, is to avoid the necessity of turning or truing to size to produce perfect fits, or boring solid rods for the making of accurate tubing. This tubing is naturally cheaper and is reasonably claimed to be also better. The works produce seamless tubing in a variety of materials, including low carbon steel, tool steel, aluminum, copper, brass and pure nickel, the last being a new thing in tubing.

The city of Chicago has decided to use cement instead of brick in the construction of the 10-foot sewer to drain Grand Crossing, Dauphin Park and South Englewood and thence southward to the city limits, a distance of about 10 miles. The sewer will have an average diameter of 10 feet.

Trade and Production in Canada.

The Sydney Strike.

TORONTO, June 24, 1904.—J. H. Plummer of this city, president of the Dominion Iron & Steel Company, returned from England about the middle of the month, and came to this city. In a published interview he expressed his entire approval of the action of his fellow directors and of the management in respect to the differences with the employees over wages. He is at Sydney at present. On June 22 he received a deputation from the Sydney Board of Trade, which is making its best endeavors to bring about a good understanding between the company and the men and thus get the works started into operation again. Mr. Plummer's reply amounted to this: That the wages the company were paying laborers were higher than those paid by other employers in the maritime provinces; that the skilled workers of the company were receiving as good pay as they could get in the United States; that the management will hereafter receive only committees of the company's employees, not representatives of this or that labor organization; that the management is convinced there are men enough to be had if only protection were afforded them.

Hardwaremen and "Dumping."

Some of the wholesale hardwaremen of Montreal waited on the Finance Minister a short time ago and made certain representations against the operation of the "dumping" clause, by which he has recently amended the Tariff act. Of course, they spoke, not as manufacturers, but as importers. They showed that the price of articles would be increased by the provision, and increased, in some cases, very materially. Their chief objection, however, was to the irregularity of prices, not to the increase of prices. In an assortment so multifarious as the stock in trade of a wholesale hardware business it is impossible to have everything appraised equitably at the precise market price current. Consistent valuation at any single port of entry will be extremely difficult, and to reconcile all the price rulings made at the several ports will be an impossibility. Hence there will be inequalities in the duties imposed under the dumping clause. This will have the effect of Government discrimination as between merchants competing in the same area. One merchant may be able to sell a particular variety of article at 5 per cent. below what a competitor 100 miles away can offer it for, the difference being due to diversity in the governing prices adopted by the customs collectors at the two points.

But the representations laid before the Minister did not avail. After considering them a few days, he announced that the dumping clause would not be changed. In many cases the enhancing of the cost of the article laid down will not benefit anybody in Canada, for not everything entering into a hardware stock is made in this country. Speaking of the actual working of the clause in the few weeks since its adoption, a prominent hardware importer in Montreal has this to say of it:

Our experience has so far shown us that goods entering Canada from the United States under the new regulations receive all the way from 50 to 67 per cent. protection, as compared with from 25 to 35 per cent. under the old tariff. Here is a bill of miscellaneous hardware from an American house. The duties under the old tariff would have amounted to about 35 per cent. The selling price of these goods in the United States is \$150, as compared with \$200 in Canada—that is, these goods are manufactured to sell at about \$200. Under the dumping clause these goods pay the regular tariff of 35 per cent., which amounts to 35 per cent. on the Canadian value of \$200, or \$70. To this is added one-half of the duty, making a total of \$105 on the invoice, where the old tariff claimed \$52.50. The only method by which this dumping clause can be avoided is one of straight dishonesty. An arrangement might be made by which goods were invoiced at the Canadian market price and then a rebate allowed by the American manufacturer. This is a chance, however, which no reputable firm would take.

The New Nickel Works.

The new smelting and power plant which the Canadian Copper Company (a constituent concern of the International Nickel Company) have been building at Copper Cliff is about ready for operation. Speaking of it in a communication to the Provincial Bureau of Mines

in Toronto, Dr. Coleman, one of the geologists of the Bureau, says: "It is a creditable piece of work, and will be much the best plant in Ontario. It is compact, well planned and well situated. The engines are just starting up and the 500-ton furnaces are nearly completed."

Notes.

Half the employees in the machine shop of the Dominion Coal Company, Sydney, N. S., received notice on the 22d inst. that their services would be no longer required.

The construction of the rail mill of the Dominion Iron & Steel Company is to be begun shortly, but is not expected to be completed before next winter.

Machinery has been ordered in the United States for the equipment of the Canada Brass Rolling Mills at New Toronto. The new works will be the first of the kind in Canada.

The Bessemer converters at Victoria Mines, Algoma, are working on Copper Cliff matte.

The bill amending the act providing for the payment of bounties on lead contained in lead bearing ores has received its first reading in the House of Commons. Since the original act came into effect \$51,000 has been paid in bounties, which amount satisfies only 60 per cent. of the claims allowed.

Arthur B. Lee, president of Rice Lewis & Son, Limited, Toronto, one of the oldest wholesale hardware houses in Canada, died on the 22d inst. He was a director of the Bank of Hamilton, of the General Trusts Corporation and of the Victoria Rolling Stock Company.

Large orders have been placed for new machinery for the Grand Trunk shops at Stratford, Ont., to which are to be added a new boiler shop, a new brass foundry, and an extension of the blacksmith shop. Tenders for the construction have been asked.

On Friday a number of thresher manufacturers—including Messrs. Coburn, White, Snider, Mason and Rowan—waited on the Minister of Customs at Ottawa and laid certain representations before him concerning the admission of that class of machinery at undervaluations.

C. A. C. J.

The Merchant Marine Commission visited Chicago last week and were given a banquet at the Auditorium Hotel by the Illinois Manufacturers' Association Thursday evening. At this banquet, of which William Duff Hayne of the Illinois Steel Company was toastmaster, addresses were made by the following: Senator J. H. Gallinger, New Hampshire, and Congressman C. H. Grosvenor of Ohio, members of the commission; R. B. Armstrong, John Barrett, Minister to the Republic of Panama; Governor Peabody of Colorado, and W. L. Brown, president of the American Shipbuilding Company. On Friday the commission held meetings in the assembly room of the Illinois Trust and Savings Bank, where an address of welcome was made by Comptroller McGann on behalf of the Mayor, and other addresses were made by James A. Patten and Secretary Stone of the Chicago Board of Trade; W. G. Sickel, Western freight agent of the Western Mercantile Marine; Minister Barrett, W. L. Brown, C. E. Kramer, a shipper and admiralty expert; J. J. Fitzgerald and A. D. Porter, representing the Boiler Makers' and Iron Ship Builders' Union; W. W. Bates of Denver, Paul Tietgens, an exporter of provisions, and others.

The Hoop Mill Wage Scale.—The interesting fact has just become public property that at the conference between the Hoop Mill Wage Committee of the Amalgamated Association and representatives of the Carnegie Steel Company the proposition submitted by the latter asked for some radical reductions in wage rates from current scale prices. The proposition provided for a different scale of prices for each of the finishing mills of the American Steel Hoop Company, controlled by the Carnegie Steel Company. The rates in each mill were to vary according to the output and the equipment of the plant. The Amalgamated Association refused to concede this, as it has always maintained that uniform rates should prevail in all mills making the same product. The

prospect of a settlement of the hoop mill scale is not very favorable, as it was intimated that the Carnegie Steel Company propose to insist that special scales be granted for such mills as have installed modern equipment by which a large tonnage is turned out.

A New Chuck for Holding Short Test Pieces

At the Atlantic City meeting of the American Society for Testing Materials, held June 16, 17 and 18, T. D. Lynch of Pittsburgh presented a paper descriptive of a new form of chuck for holding short physical test pieces, which attracted considerable interest and elicited favorable comment on the part of the members present. After making a plea for a more general divulgence of the many excellent methods and devices used in making tests, Mr. Lynch said in part:

I wish to describe a chuck designed to hold physical test pieces without the usual necessity of threading the

$\frac{3}{4}$ x $\frac{1}{4}$ inch, to receive the end of the test piece that may extend above the bushing. A slotted hole, *e*, extends from chamber *d* to the bottom of the chuck to provide space for the test to assume proper alignment. The half bushings are made of tool steel, and so designed that the shoulder of the test piece will fit snugly into them when put together. The outside of the half bushing is accurately made, so that when put together in pairs they will slip easily into chamber *d*. The clamp *g* is fitted to the back with two small screws and extends over the end of chamber *d* to hold the bushings when they are pushed home. Retaining piece *h* is made of spring steel and is attached to the front of the body *c* by means of one screw, permitting a side motion; when drawn down it holds the bushings and test piece firmly in place, and when pushed to one side the bushings can be readily removed.

Fig 2 illustrates three styles of holding-heads for specimens, used successfully in this chuck.

No. 1 is 4 inches total length, and is recommended when there is plenty of stock.

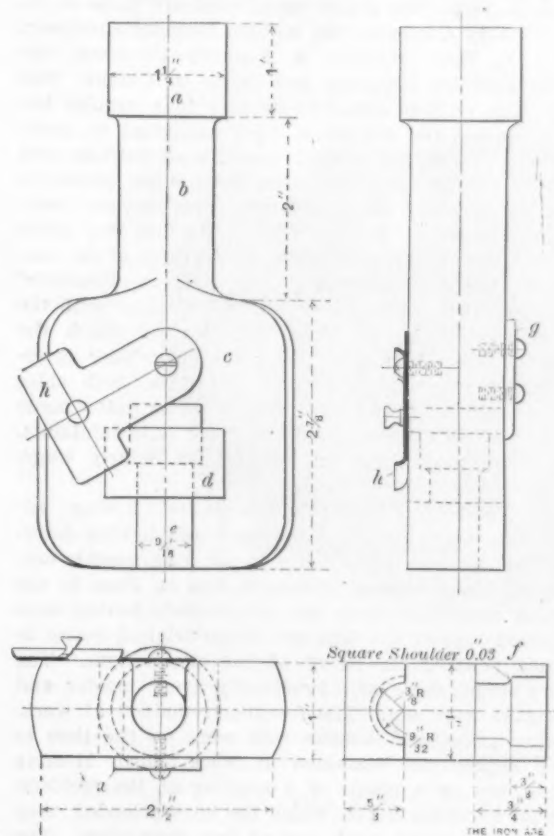


Fig. 1.—Plan, Front and Side Elevations of the Chuck and Plan and Side Elevation of the Bushing.

ends. By this means we make tests of standard dimensions of the tested portion, and as short as 2½ inches total length. I have deviated slightly in the dimensions of the test piece from that adopted by this society as its standard. The 2-inch gauge length is maintained, but 0.505 inch diameter is adopted instead of 0.5 inch diameter on account of convenience of calculation. This in itself affects the holding device in no way, and it is found that 0.505-inch diameter is just as easy to machine as 0.5 inch, making 0.2 inch instead of 0.1963 square inch area, rendering the computation simple and correspondingly less liable to error.

This chuck has been in constant use in the material testing department of the Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., for about two years; it is extremely simple, easy to apply, gives perfect alignment, saves threading, permits of tests from minimum stock, and may be described briefly as follows:

The head *a* and neck *b* are similar to the old chuck for the standard threaded-end test pieces. The body *c* is 2½ x 2½ x 1 inch, with chamber *d* 1¼ x ¾ inch extending through the body *c* to receive the split bushing *f*. Adjacent to this and over it is provided another chamber.

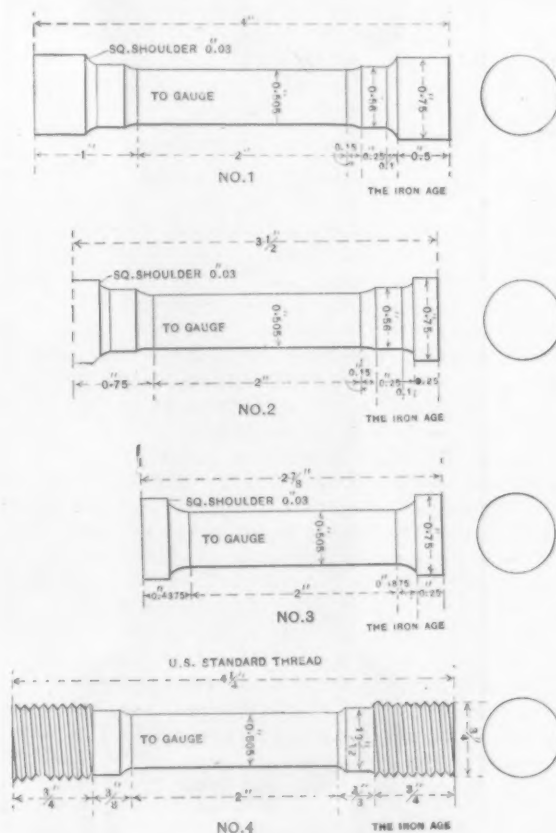


Fig. 2.—Different Styles of Holding Heads for Specimens Used and the Standard Test Piece.

No. 2 is $3\frac{1}{2}$ inches total length, and shows the proper proportion when the test pieces are but $3\frac{1}{2}$ inches long.

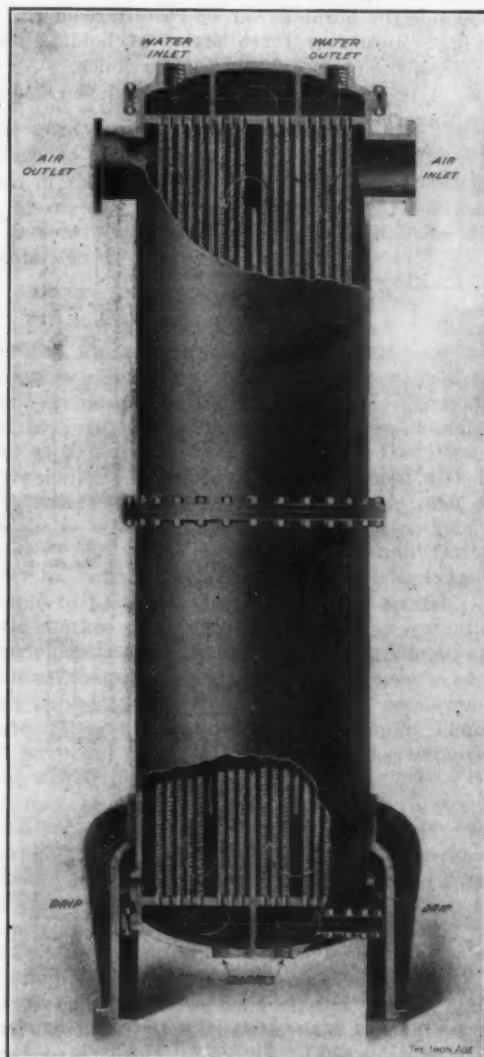
No. 3 is $2\frac{7}{8}$ inches total length, and is the minimum length so far used in this chuck, maintaining a constant test section of 2-inch gauge length and 0.505 inch diameter. There has been no noticeable difference in the results of tests due to the variations in total length. Even with the shortest piece, all tests so far conducted have broken near the middle.

No. 4 is $4\frac{1}{4}$ inches total length, with threaded ends, and corresponds in every way to the standard adopted by this society, except the diameter is 0.505 inch instead of 0.5 inch. This was used by us with the ordinary threaded chuck until replaced two years ago by the one just described.

A slight error was recently made in referring to the territory to be covered by W. M. Kelly, who has been appointed manager of the branch office in Atlanta, Ga., recently opened by the Jones & Laughlin Steel Company, Pittsburgh. Mr. Kelly will take care of all territory south of Tennessee and Virginia and east of the Mississippi River.

The Taunton Compressed Air Cooler.

In using compressed air it is important that its temperature should be reduced before it is passed to the storage tanks, as there is considerably more energy in a cubic foot of cool air than in the same volume of hot air. Air, as it leaves a compressor, is at a rather high temperature, owing to the heat generated during compression. To extract this heat from the air, the Taunton Locomotive Mfg. Company, Taunton, Mass., designed a heat extractor for the American Waltham Watch Company, Waltham, Mass., in which they applied the principle of their even flow feed water heater. The illustra-



View of the Taunton Compressed Air Cooler with Parts Broken Away to Show the Tubes and the Course of the Air and Cooling Water.

tion herewith shows the form and construction of the new extractor.

As will be seen, the compressed air and the water flow in opposite directions, and both make four passes through the cooler. The advantage of the countercurrent is that it accomplishes the cooling more gradually and hence effectively. The extractor is divided by vertical partitions to cause the four passes of the air, and in the four chambers are the copper water tubes. The latter have corrugated surfaces which increase the area of contact, and break up the flow of water in a manner such that the maximum heat extracting effect is obtained. If the ordinary smooth surface copper tubes were used the water in flowing through them would become a fluid pencil with heated outer surface and cool core, thus wasting a good deal of the cooling effect of the water. The old way made use of one large group of tubes, through which the water was permitted to slowly make its way up through the chamber. In this new heat extractor, just as in the even

flow feed water heater, the flow of water is increased by dividing the tubes into groups and sending the water through a few tubes at a time, thus obtaining greater velocity of the water. As is well known, the greater the velocity of the water the greater its heat extracting power. The improvements summarized are the use of the countercurrent of water against air; the high velocity of the water, and the use of corrugated surfaces in the tubing.

The extractor at the Waltham power plant has been operated to cool 1450 cubic feet of air per minute from 230 to 65 degrees F., and in so doing heated $5\frac{1}{2}$ gallons of water per minute from 55 to 180 degrees F.

The Worcester Molders' Strike.

About 225 union molders and core makers are on strike at Worcester, Mass., because of a reduction in wages of 25 cents a day, from a \$3 to \$2.75 minimum wage for molders and from \$2.75 to \$2.50 minimum wage for core makers. The foundries affected are those of the Reed Foundry Company, the Kabley Foundry Company, the L. W. Pond Machine & Foundry Company, the Wheeler Foundry Company and James A. Colvin. The foundrymen, as they stated to the men in a circular letter announcing the reduction, were compelled to make the cut because of the general condition of business and especially because of competition from other places in New England where wages and other expenses are lower than in Worcester. Notice of the reduction was given early in May, to take effect June 1. As three of the concerns affected are members of the National Founders' Association, that body entered into negotiations with the Iron Molders' Union of North America, of which the Worcester union is a unit, under the New York agreement, these negotiations lasting two days, both sides being represented by national officers. The union made the effort to get a nine-hour day for the \$2.75 minimum, which would have been an increase in hourly wage. This was refused.

The National Founders' Association, having endeavored to arbitrate the differences and having determined that the union position was not a reasonable one, so notified the Worcester members, and on June 10 the reduction went into effect, the old schedule having been maintained beyond the time set in the original notice to the men, pending the result of the negotiations. The molders struck June 24. Practically every molder and core maker went out. The foremen remained at work. The apprentices and helpers who were on the lists to become apprentices remained at work until Monday morning, but as a result of a meeting of the Molders' Union on Saturday night, which the boys attended, they went out in a body, with one or two exceptions. The regrettable feature of this is that the boys are not members of the union, neither are they eligible to re-employment in Worcester foundries, as most of them, being apprentices, broke contracts when they joined the strikers. They number more than 30.

The \$3 minimum paid in Worcester, even for a ten-hour day, as compared with the nine-hour day in practice in some other cities, is higher than that generally paid in New England. This is especially true because this minimum applies to bench molders as well as to floor molders. Usually the minimum for bench is lower than the floor molder. In the Worcester foundries the custom is for the bench molders to stop work when the blast goes on, at about 4 o'clock in the afternoon, and after that they have nothing to do excepting to pour their own castings, which is a matter of about 15 minutes. A careful reckoning from the records of a time registering machine in one of the larger foundries showed that the actual average time of the men in the foundries was nine hours and four minutes, and, of course, the time actually worked was less than this. So in practice the Worcester molders have been receiving a \$3 minimum wage for a nine-hour day, though it is reckoned as a ten-hour day.

The reduction is not on a percentage basis. Of the molders on strike, 28 have been receiving more than the \$3 a day, some of them \$3.50 a day. These men were re-

duced 25 cents a day under the new schedule, and nine of them would still be receiving more than \$3 a day, and several of these \$3.25 a day, had they remained at work.

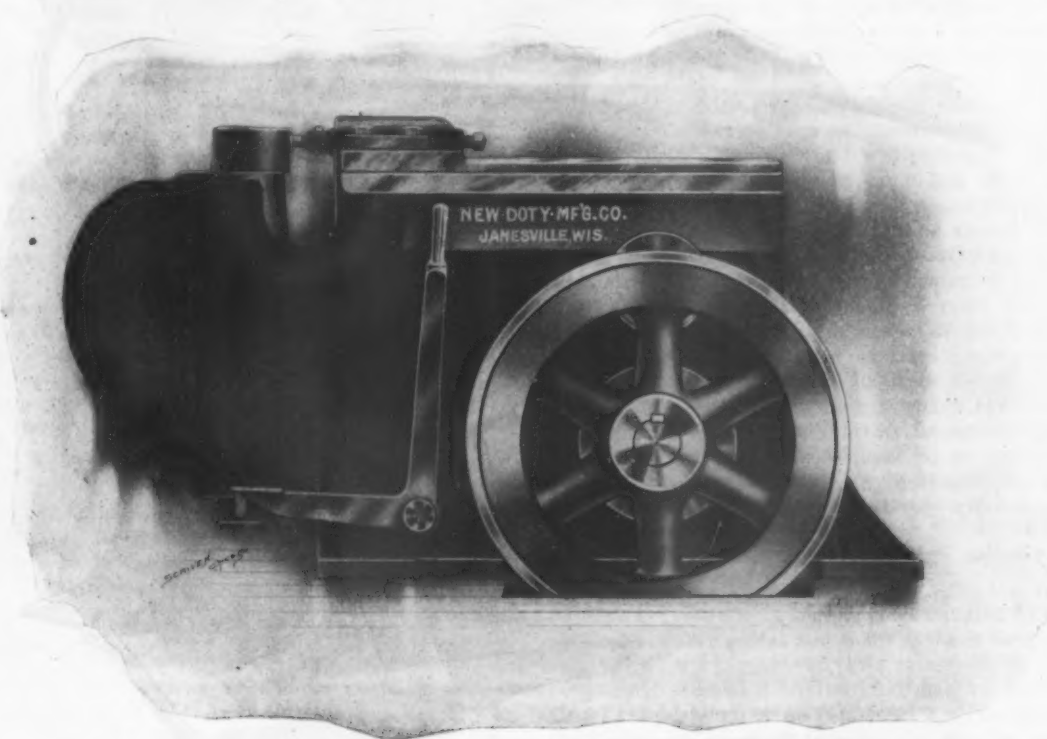
The strike has assumed a national significance because the National Founders' Association is back of the Worcester foundrymen and the strike has the sanction of the Iron Molders' Union of North America.

The New Doty Horizontal Flange Punch.

The machine illustrated herewith was designed particularly to facilitate punching material upon which it is necessary to "spot" each hole, a class of work which is exceedingly slow on the geared type of machines. This machine is driven either by belt or motor, as desired. The sliding head is moved by a heavy steel lever, actuated by an eccentric shaft, to which the fly wheels are rigidly keyed. A hardened tool steel gag is thrown in place by the hand and foot lever shown in the engraving, and is automatically thrown out at any desired position

ing followed in sequence of meetings of the same Transmission Committee at New York, March 27, 1903; Niagara Falls, July 1, 1903, and New York, March 25, 1904. As at the previous meetings, papers were presented by members, the papers serving as introductions to discussions on the lines laid out.

The Bates Patent Suit.—The Bates Machine Company, Joliet, Ill., have won a long contested patent suit against A. J. Bates, formerly secretary-treasurer of their company, the Court awarding them \$40,000, with interest at 5 per cent. since 1896, making a total award of \$55,800. While a member and employee of the firm, according to the published testimony, A. J. Bates invented a machine for weaving wire fence, and sold his invention to Cory E. Robinson for \$40,000. The company contended that this sum belonged to them instead of to Mr. Bates individually, inasmuch as the company had been formed for the purpose of devising and building machinery of that character, their president, Joseph Winterbotham,



THE NEW DOTY HIGH SPEED HORIZONTAL FLANGE PUNCH.

of the stroke, which allows holding the center point of the punch close to the material for convenience in centering the hole to be punched. This is an improvement over the gag as commonly used, in which the sliding head can only be stopped at the furthest point from the work. The machine has an 8-inch throat and a capacity to punch a $\frac{3}{8}$ -inch hole in $\frac{5}{8}$ -inch material. It can be run from 60 to 90 strokes per minute. The machine has recently been brought out by the New Doty Mfg. Company, Janesville, Wis., who claim for it compactness, high efficiency and simplicity in construction.

Electrical Engineers Meet.—A special meeting of the high tension transmission section of the American Institute of Electrical Engineers was held in Chicago, June 21 and 22. About 50 members from out of town were in attendance, and an equal number of members of the Chicago branch of the Institute joined the visiting members. The convention sessions were held in rooms of the Western Society of Engineers in the Monadnock Block. Blon J. Arnold, president of the Institute, presided, and Ralph W. Pope of New York, the secretary of the Institute, acted in his official capacity. The entertainment of the visitors was in the hands of a committee consisting of James Lyman of the General Electric Company, chairman, and Peter Junkersfeld of the Chicago Edison Company, who is honorary secretary of the Chicago branch. This meet-

ing furnished the capital, and A. J. and W. O. Bates the engineering skill to conduct the business. After the sale of the patent A. J. Bates and C. E. Robinson, without the knowledge of the Bates Machine Company, formed a company known as the Standard Railroad Farm & Fence Company, and erected a plant for the manufacture of barbed and woven wire fence and allied lines. This business was later absorbed by the Consolidated Steel & Wire Company, and some time later A. J. Bates resigned from the Bates Machine Company and joined the wire company. The Court decided that inasmuch as A. J. Bates owned a one-fourth interest in the Bates Machine Company at the time of the sale of his invention, he should receive one-quarter of the amount that he is obliged to pay to that company.

C. W. Leavitt & Co., 15 Cortlandt street, New York, state that C. W. Leavitt, Jr., who temporarily assumed control of their affairs upon the death of the senior partner last February, finds it impossible to devote his attention to the business, on account of his large and growing private engineering practice, and will on July 1 retire from the firm. The business will be continued under the former name and with the same amount of capital. W. F. B. Leavitt and C. D. Robb, both of whom have been connected with the firm for several years, will assume the control and management.

The Holmes Lightning Cut Off Saw.

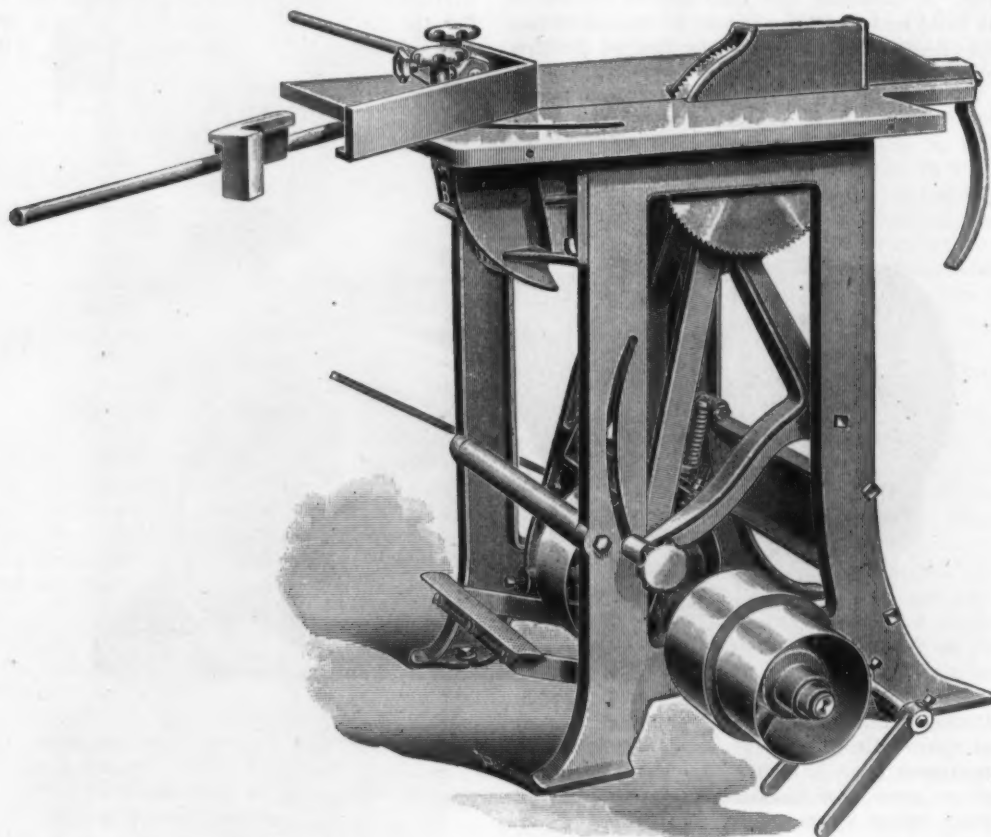
A simple and effective machine for sawing accurately and rapidly any kind of lumber used in pattern and other wood working shops is shown in the accompanying illustration. It is a new product of the E. & B. Holmes Machinery Company, Buffalo, N. Y., and is one of the machines which they now have on exhibition at the World's Fair. It is of substantial construction, entirely self contained, and is provided with a semiautomatic feed that is under control of the operator at all times.

The saw mandrel runs in self oiling bearings and is mounted upon an oscillating frame, which is manipulated by a foot treadle. The swinging frame is hung upon conical bearings in the base of the main frame, in front of the countershaft, so that increased belt tension is obtained as the saw enters the cut. An adjustable

employees were invited to join in the occasion. There was a long list of sporting events, refreshments were served during the day and at 6 o'clock a collation was spread in the pavilion. Music was furnished and a large platform was given over to dancing. A vaudeville entertainment was another feature of the day.

A Notable Gas Engine Power Plant.

A gas engine power plant which has attracted considerable notice within the last few years, says the *Progressive Age*, is that of the Union Switch & Signal Company, Swissvale, Pa. This plant at present contains 500 brake horse-power in Westinghouse three-cylinder, vertical gas engines of the direct connected type. The generators are of 220 volt, alternating current, and operate the parallel upon a common bus, with widely fluctuating



LIGHTNING CUT OFF SAW WITH ADJUSTABLE GAUGES.

saw guard protects the operator from danger of injury by accidental contact with the saw. Where an extended table is necessary for handling long work wooden tables may be bolted on either side of the machine.

A reversible stop gauge is provided, which can be used either right or left handed, and when desired additional stop gauges can be furnished so that various lengths can be cut from the same board. This machine is ordinarily built with stationary guides for square cutting only, but when desired adjustable guides can be furnished, as shown in the illustration, to cut various angles up to 45 degrees.

The machine carries a 12-inch saw and will cut up to a width of 18 inches. When cutting narrow boards or strips the travel of the saw may be shortened by adjusting a limiting stop. The tight and loose pulleys are 8 inches in diameter by $4\frac{1}{2}$ inches face, and should run 1050 revolutions. The weight of the complete machine is 500 pounds, and it occupies a floor space of 3 x 3 feet.

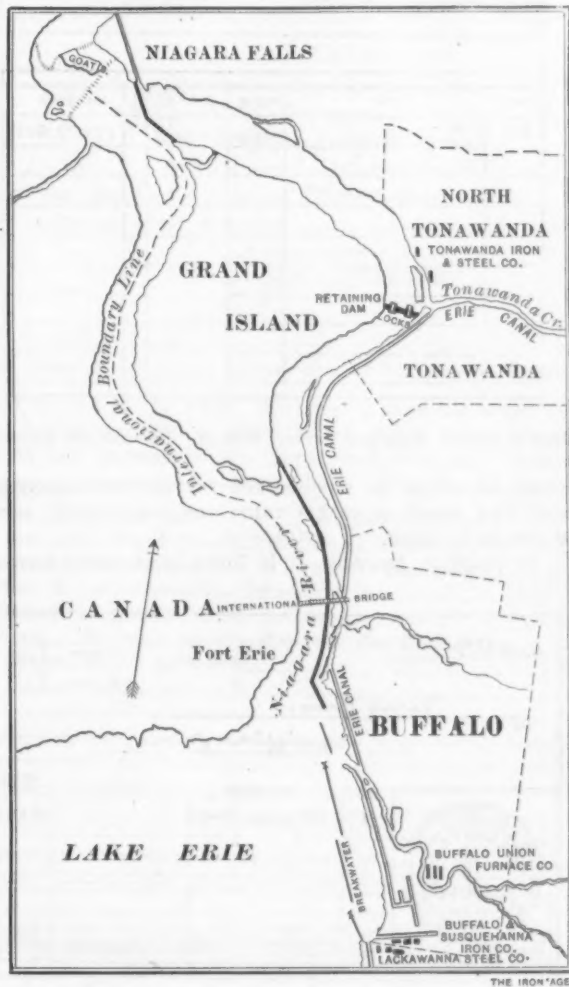
The Walker & Pratt Mfg. Company, Watertown, Mass., gave an outing to their employees June 18 on the grounds adjoining their foundry. The occasion was in commemoration of the fiftieth anniversary of the founding of the company's business. The families of the 275

load due to manufacturing operations in the works of the company, for which power is furnished by the plant.

On account of the successful operation of the gas engine plant up to the present time, the Union Switch & Signal Company have decided to increase their capacity, and for that purpose have contracted with the Westinghouse Machine Company for a 300 horse-power horizontal, double acting gas engine. This engine will be of the type introduced in 1902 by the Westinghouse Machine Company; it has two cylinders 16.5 inches in diameter, 24-inch stroke, arranged in tandem with single crank. The engine will drive a 210-kw. Westinghouse alternating current generator, which will operate in parallel with the four alternating current generators now installed and furnishing 220-volt, two-phase, 60-cycle current for power and lighting throughout the works. The unit operates at the speed of 180 revolutions per minute, and has extended shaft for the reception of a pulley driving a small exciter generator. The present gas power plant was installed about four years ago in the new shops of the Union Switch & Signal Company, and has been so entirely satisfactory that present requirements for more power are to be met by the new horizontal gas engine unit. When this is in operation steam will be entirely dispensed with except for heating buildings and running steam hammers and riveters.

New Plan for Niagara Ship Canal.

The Manufacturers' Club of Buffalo is actively promoting measures to secure the adoption by the Federal Government of a more comprehensive plan for a ship canal around the rapids in the Niagara River at Buffalo than the plan presented to the River and Harbor Committee at Washington last March, which was, in effect, simply a widening of the Erie Canal through the city of Buffalo to a connection with Lake Erie, with large locks below the city at Black Rock. The new plan advocated by the Manufacturers' Club provides for a ship canal outside the present harbor and shore line of Niagara River, along the entire river front of the city. This will be effected by the construction of a steel pier bulkhead or breakwater along the bed of the river at an average dis-



NEW PLAN FOR NIAGARA SHIP CANAL.

tance of about 600 feet from the shore line, and parallel-ing it from the foot of Lake Erie to the foot of Squaw Island—a short distance below the International Bridge—the steel bulkhead or breakwater continuing from that point across the American channel of the river to the head of Grand Island, as shown by the accompanying map, and by the building of a retaining dam with locks at Tonawanda in the American channel, between the American shore and Grand Island; and the dredging out of the canal channel thus provided in the bed of the Niagara River fronting Buffalo, so that the depth made by the dredging, together with the higher water level produced by the retaining dam, will afford sufficient depth of water for the largest lake vessels, entirely free from dangerous currents.

An extension of the steel bulkhead or breakwater from the foot of Grand Island to the American shore at Niagara Falls—opposite Goat Island and just below the entrance to the Niagara Falls Hydraulic Power Canal—will make the American channel safely navigable for

large vessels to the southern section of the city of Niagara Falls, and afford lake shipping facilities to the many large manufacturing concerns located at the falls and along the entire river front between Buffalo and Niagara Falls, now seriously handicapped by the swift current. The scenic beauty above the falls will not be marred, as the lower face of the bulkhead will be ripped with rock, forming cascades.

The secretary of the club, Millard F. Bowen, has been authorized to have estimates of the cost of the work prepared by expert engineers and obtain bids, the proposition being that the cost of the work shall be defrayed proportionately by the United States Government, the State of New York and the city of Buffalo. The county of Erie and the railroads which will be benefited are also to be asked to contribute a *pro rata* share.

There are cogent reasons for this joint participation in the cost of transportation, the Federal Government properly undertaking to defray a portion of the expense, as the plan will benefit interstate commerce by providing greatly increased shipping facilities through the enlarged waterway, eliminating the dangerous elements from the navigation of Niagara River, as well as furnishing increased transfer facilities from lake to canal and lake to rail. The State should assume a portion, as the plan provides a high level feeder for the new 1000-ton barge canal for the section between Tonawanda and Lockport without further expense, and will permit the discontinuance and sale of the present canal bed adjacent to the Niagara River between the International Bridge, Buffalo and Tonawanda. The city of Buffalo should contribute, owing to the fact that the outer breakwater along the river shore would prevent sewage contagion reaching the water tunnel intake, and insure a pure water supply without the expense of an extension of the intake tunnel into Lake Erie; the county and railroads contributing on account of access afforded to Grand Island (now without bridge connection) upon approaches over the retaining dam and locks, without further impediment to navigation, and the benefits consequent upon the locating of new industrial interests on Grand Island and along the American channel of Niagara River, not now available for such purposes.

The Panama Canal Zone Tariff.—At the meeting of the Cabinet on June 24 the plans formulated by Secretary of War Taft for postal and tariff systems in the Panama Canal zone were approved, and subsequently they were formally transmitted to the chairman of the Isthmian Canal Commission by Secretary Taft. The tariff regulations have the effect of applying the Dingley rates to all importations into the canal zone from any country except the United States or the insular possessions of the United States. Goods entering the zone from ports of the United States will be free of duty and goods entering from the insular possessions of the United States will be admitted on the same terms as at the ports of the United States. There is nothing in the order regarding goods imported from the canal zone to the United States, but it is probable that the law officers of the Treasury Department will hold that under the decisions of the Supreme Court in the insular cases such goods are entitled to free admission in the absence of any legislation by Congress imposing a duty upon them.

The Buffalo & Susquehanna Iron Company's Plant.—Final construction work on the plant of the Buffalo & Susquehanna Iron Company, at Buffalo, is being rushed and it is expected will be finished about August 1. It is stated that ceremonies appropriate for the occasion and sufficiently impressive to mark this important step in the development of Buffalo's iron and steel industry will be observed when the operation of the plant is begun. The ship canal to connect the plant with Lake Erie, and which is about 1 mile long, 200 feet wide and 23 feet deep, cannot be entirely completed before next spring; but the ore bin located between the canal and the furnaces, and one of the finest ore bins in the world—800 feet long and 250 feet wide, with solid concrete bed—is finished and ready for use.

who find business getting slack and have to lay off Jones. The company fill out a salmon colored blank, called a "quit card," reproduced in Fig. 1, and send it to the labor bureau.

Jones is immediately invited by the bureau, by postal

Order No. 93 Feb 18. 1904
 Mr. Ferry Bros. Springfield
Mass.
 The bearer, John Jones
 wants position as planer hand
 Remarks Recommended by The Brown Co.
 This card should be taken up in every case and mailed on same day
 in case the applicant is employed fill out blank on reverse side: if applicant
 is not employed, state the reason on reverse, and mail card at once to
CONN. VALLEY LABOR BUREAU,
ARTHUR E. CORBIN, Secretary,
 Rooms 16-17, 332 Main Street,
 SPRINGFIELD, MASS.

(APPLICATION CARD)

DATE Feb. 19, 1904
NAME John Jones
ADDRESS 47 Broadway.
Springfield.
Will ENTER our employ as planer hand
Trade Machinist Specialty Planer hand
Begins work Feb. 23, 1904
DATE OF RECORD
NEW SIGNATURE Tommy Bros
John T Smith
(OVER)

Figs. 6 and 7.—Face and Reverse Side of "Application Card."

card, to call at the office. Perhaps he does not wait for the invitation. He is asked to fill out a blank, from which his statements are transcribed onto an "unem-

2967		751	
NAME	John Jones.	Trade	Prochnitz.
Address	47 Broadway, Springfield.	Specialty	Plaster work.
Age	38	Married	Yes.
		Nationality	American.
Served	3 years apprenticeship with	Columbia Co.	
Certificate dated	Jan 14, 1886.	Total experience at Trade	21 Years
Remarks	Recommended by Brown Co. (A.B. Brown)		
Steady man, faithful.			

[illegible]

Figs. 8 and 9.—Face and Reverse Side of "History Card."

played record" card of pale straw color, the face and reverse sides of which are shown in Figs. 2 and 3.

Each unemployed record card has its number. It will be noted that Jones considers himself worth 30 cents an hour. His "quit card" states that he has been receiving 27 cents.

At about the same time Terry Brothers, another subscriber to the bureau, are in need of a planer hand, and send to the bureau an order for such a workman, which order card is reproduced in Figs. 4 and 5.

This card contains the rate of wages the firm wish to pay the workman, and there are spaces so that a number of men may be ordered at the same time. In the upper right hand corner of the face is a blank to contain the number taken, as well as the total number wanted, which is sometimes a useful bit of information for the bureau. Each such order is numbered when it is received at the bureau, the sequence being carefully maintained. It is also stamped with the hour of receipt, and employers are served in the order of the time of receipt, this being an absolute rule, and in times of great business prosperity an important rule.

The bureau has an order for a planer hand at 28 cents an hour and a planer hand after work at 30 cents an hour; the right man for the right place, apparently. So the planer hand is given the card shown in Figs. 6 and 7, which is of light blue, and told to go to Terry Brothers.

Terry Brothers take the card and fill in the blanks on its reverse side. If the man is not hired the reason is stated on the line designated "date or reason." Perhaps they cannot agree on the rate of wages. There may be some other reason. If he is hired the card is filled out with the date when Jones begins work.

By means of these cards valuable records have been obtained. If Jones does not take the job at Terry Brothers, that fact is entered upon his "unemployed record" card. If he gets the job, the fact goes upon his history card, each of which has its number, and the unemployed record card is removed from the file. His card goes into the file by concerns—that is, by employers—which is carefully kept and acts as a check upon the history file. Another complete check is obtained upon the unemployed file, where men have been let go by employers, by removing their cards from the file by concerns and filing them by themselves. Upon the history card is placed Jones' date of leaving his old employer and that upon which he began work with Terry Brothers.

No history card is given a workman until he has entered the employ of a subscriber to the bureau. His application is taken, no matter where he has previously worked, but to avoid padding the history file with records of the floating population of the unemployed it is considered best to wait until the applicant has been placed. Then his history appears in its proper place, where it will remain until he dies, for removal from the territory embraced by the bureau is not considered a sufficient reason for destroying a man's record. This history card is shown in Figs. 8 and 9.

In addition, the usual card is provided, to be filled out by the employer when he takes on a new man otherwise than through the bureau.

One instance of the working of this bureau indicates how its existence engenders good feeling between its subscribers: A concern doing business in the suburbs of Springfield released a machinist because there was no work for him, and the man went to work in one of the city shops. The suburban manufacturer found business improving and wished to get this workman back again. He went to the labor bureau and told Mr. Corbin of the case, adding that the workman wished to return to his old job, especially because his home was in that suburb and the work was more convenient to him. Mr. Corbin called on the city concern and put the case to them. He was told that they would like to keep the man, but would leave the matter entirely to him. He decided to return to his old employer, and the matter ended without friction.

Another instance was that of a man who was discharged for tardiness. Mr. Corbin asked him the reason for his discharge and the workman told him. Asked why he was tardy, he said that his little girl was sick. He had not told his foreman the reason. He had been told that the next time he was late he would get through, and he stolidly took his discharge, apparently thinking it not worth while to explain. Mr. Corbin took up the matter with the firm, and the man is back at his old work. He would never have been discharged had he made the explanation himself.

The Connecticut Valley Metal Trades Association starts out with a large membership, nearly all of the important concerns in Springfield and vicinity being mem-

bers and subscribers to the labor bureau. Others are joining in the territory already included in the work, including Chicopee and Chicopee Falls, Holyoke, Westfield, Northampton and other places. The success of the institution seems to be assured, not the least reason for this being the energy with which Mr. Corbin is conducting the work, coupled with his experience in Metal Trades Association work as an officer of the national association.

Standard Axle and Forging Specifications.*

BY H. V. WILLIE.

The American Society for Testing Materials has been strongly urging the adoption of standard American specifications. This result can only be obtained by co-operating with other societies. But after formulating its specifications the American Society has done very little for the furtherance of this purpose. The American Society of Mechanical Engineers and the Master Mechanics' Association are considering the question of forgings, but each committee has worked independently of the other, with the result that we now have more specifications than ever.

In an attempt to harmonize these differences, the chairman of the Master Mechanics' Association made an effort to secure a joint meeting of the chairmen of the committees on forgings of the different societies, and this meeting was attended by Professor Spangler of the American Society of Mechanical Engineers, Messrs. Vauclain and Pomeroy of the Master Mechanics' Association and by the writer.

It was conceded to be desirable that the American Society of Mechanical Engineers and the American Society for Testing Materials' specifications for high steel and the master mechanics' specifications for steel axles and locomotive forgings should correspond, inasmuch as the synopses of specifications attached to the American Society for Testing Materials' specifications for forgings show that outside of the United States Government the railroads and builders of locomotives are the most extensive users of this grade of steel.

To place the makers of basic and acid steel upon an equal footing it is also desirable either to raise the limit for phosphorus without any reference to the method of making the steel, or give the basic makers a lower limit and the acid makers a higher one. The standard American practice, however, appears to be to place the limit on phosphorus and sulphur at about 0.05 per cent. without regard to the method by which the steel is made. The following statement shows the difference in the proposed specifications of the different societies and the suggested compromise specifications:

	A. S. M. E.	A. R. M. M. A.	A. S. T. M.	Compromise suggested for steel axles, forgings and high steel axles, ingots, nealed.
Phosphorus	0.04	0.05	0.05	0.06
Sulphur	0.04	0.05	0.05	0.06
Manganese	0.60	0.60	0.60	0.60
Tensile strength.....	80,000	80,000	80,000	80,000
Elongation, per cent.	18	20	20	18
Reduction of area...	25	35	35	25
Bending test; 1 x 1/2 inch.....	180° over 1 in. dia.	None	None	180° over 1 in. dia.

This compromise would require the following changes in the various specifications:

American Society of Mechanical Engineers: Phosphorus and sulphur raised from 0.04 to 0.05 per cent.; a limitation of 0.60 per cent. on the manganese; elongation raised from 18 to 20 per cent. in 2-inch section; reduction of area reduced from 35 to 25 per cent.

Master Mechanics' Association: Reduction of area reduced from 35 to 25 per cent., and the addition of a bending test.

American Society for Testing Materials: 1. Steel axles. Phosphorus and sulphur reduced from 0.06 to 0.05 per cent.; manganese limited to 0.60 per cent.; elongation raised from 18 to 20 per cent.; reduction of area of 25 per cent. and a bending test specified. 2. Forgings.

* Paper read before the American Society for Testing Materials, Atlantic City, N. J., June, 1904.

Phosphorus and sulphur raised from 0.04 to 0.05 per cent.; limitation of manganese to 0.60 per cent.; elongation reduced from 22 to 20 per cent., and reduction of area from 35 to 25 per cent.

The manganese is limited because experience indicated that steel is less liable to fail by fatigue when the tensile strength is secured by additions of carbon rather than by manganese.

Plans for the Naval Colliers.

WASHINGTON, D. C., June 28, 1904.—While the formal decision of the Navy Department as to where the two colliers authorized to be constructed by the Government are to be built will not be made until Paul Morton has qualified as Secretary of the Navy to succeed Mr. Moody, it has been practically determined that one of them shall be constructed in the Brooklyn Navy Yard and the other in the yard at Mare Island, Cal. This conclusion is the result of a careful investigation of conditions in the various yards recently undertaken by Admiral Capps, chief constructor of the navy, who has submitted a report stating that, with the sole exception of the navy yard at New York there is not a single navy yard, either on the Atlantic or on the Pacific Coast, which is at the present time equipped with a building slip and overhead crane facilities necessary for undertaking the building of a collier of the size specified in the naval appropriation act, inasmuch as this vessel will require a building slip as long and as fully equipped as that necessary for the "Connecticut;" that while the navy yards at Portsmouth, Boston, League Island, Norfolk and Mare Island are fairly well equipped with all usual shipbuilding tools, there are deficiencies in other respects, and the large improvements in progress at those stations, in docks, shops and other buildings, will render the undertaking of extensive shipbuilding work at this particular time less economical than would otherwise be possible.

An Appropriation Necessary.

The latest advices received by the Department indicate that the "Connecticut" will be launched next September, which will clear the building slip at the Brooklyn yard for one of the colliers by the time the plans and specifications have been completely worked out. The construction of the second collier, however, will be delayed until Congress can provide an appropriation for refitting the Mare Island yard. An urgent request will be forward to both Houses as soon as the new session begins and the necessary funds will doubtless be provided in the annual urgent deficiency bill, which this year will probably become a law before the holiday recess. With all possible expedition, however, several months will probably elapse after the first collier is begun before work on the second can be commenced.

The Bureau of Construction and Repair has completed a tentative design for the colliers as the basis for the calculations of the Bureau of Steam Engineering for motive power, auxiliaries, &c. The vessels will be of 12,500 tons displacement, with a length of 450 feet and designed for a maximum cruising speed of 16 knots. The engines will be of 7500 or 8000 horse-power, and each vessel will carry 5000 tons cargo of coal. The motive power and equipment will be quite similar to that of the refitted merchant ship "Prairie," but the expense of installation will be somewhat reduced by the use of cast iron frames instead of cast steel. Twin screws will be employed.

It was the original intention of the Bureau of Steam Engineering to install Scotch boilers on the colliers, but calculations demonstrate that the space and weight of this type would render it impractical in view of the bulky cargo and the unusually large bunker space necessary to give the vessels the required steaming radius. A water tube boiler will be specified, but the exact type has not yet been determined. It is probable that some novel auxiliaries will be installed, in the shape of steam winches and other devices for getting up the cargo as rapidly as possible, and investigations are being made of a number of appliances designed for coaling at sea, in the hope that a thoroughly practical system can be provided.

W. L. C.

Rolling Mill for Reverse Curves.

We illustrate herewith a machine which has been designed by Godfrey B. Johnson of 8 Victoria street, Westminster, London, for the rolling of reverse curves from the flat strip or hoop. The idea on which Mr. Johnson worked in designing this machine was that it was possible to roll such articles straight; that is to say, to turn out a finished product which would require no further straightening process. The ordinary method of producing such articles is by stamping, and it is by no means an unusual thing for a section to require five or six operations, and consequently handlings, before it is completed. Moreover, the manipulations require skilled labor. Now, it is evident that if a machine could be made which could combine all these, say six, operations into one operation, would turn out the work straight and would do away with the necessity for skilled labor, there would be a considerable saving of money. This saving would be all the greater if the machine could deal with any length of material. To have a stamping machine, for



Fig. 1.—Section of "Dropper" Bar.

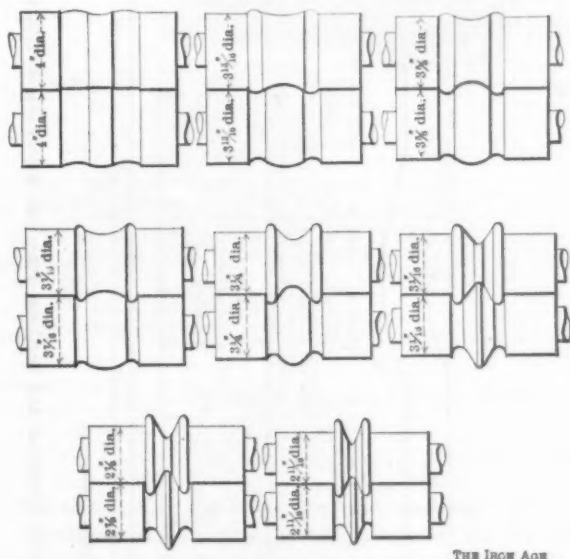


Fig. 2.—Set of Rolls for "Dropper" Bars.

chine molded to the form shown and quite straight. There were no evidences that there had been any heating; indeed, the droppers were practically just as cool as had been the strips before they were put into the machine. This will not be wondered at when it is stated that the material passes through a series of ten pairs of rolls, and that the first eight of these gradually mold the strip to the desired form. The last three rolls are all of the same size, and the last two are intended to perform any straightening which may be required. As a matter of fact, it has been found that the first two rolls are unnecessary and may be dispensed with, thus reducing the number to eight rolls and shortening the

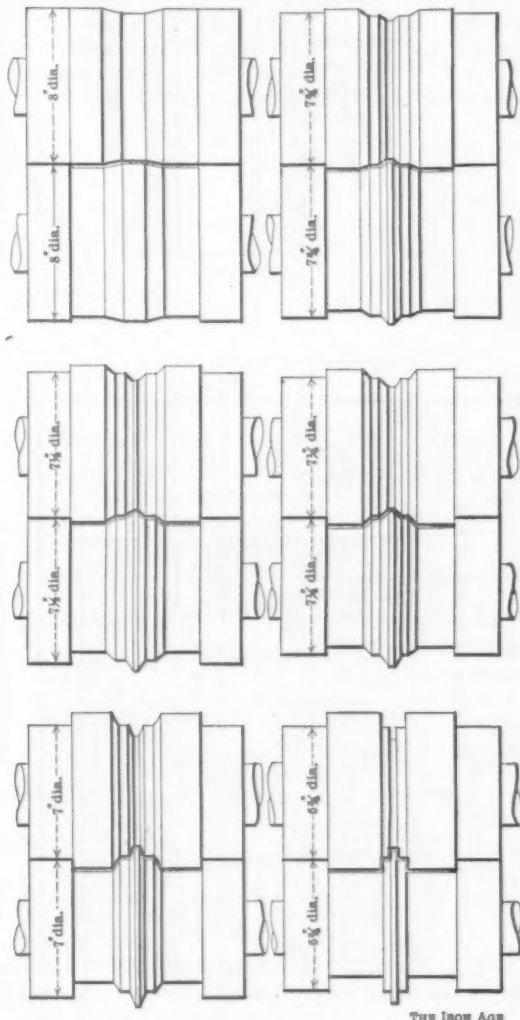


Fig. 3.—Set of Rolls for "Standard" Bars.

ROLLING MILL FOR REVERSE CURVES.

example, which would deal at one stamping with lengths of, say, 16 feet, would be, if not impossible, at all events, prohibited by cost, space taken up and other considerations. Mr. Johnson claims for his rolling mill that it will deal at one operation with any lengths which may be supplied to it—outside considerations alone putting a limit in this respect—that it will turn out work much quicker and more economically than is the case with stamping machinery; and that the product will leave the machine absolutely straight, while the machine itself can be managed by boy labor.

The particular machine which we have recently had an opportunity of seeing at work had been arranged for rolling fencing "droppers" and "standards." The actual section for which the rolls of this machine were designed had the form shown in the accompanying engraving, Fig. 1, which is that of fence droppers. The metal being rolled was sheet steel, 3 inches wide and 1-16 inch thick. It was passed in at one end of the machine in strip, cold, and came out at the other end of the ma-

chine. The processes are so gradual and the cross strains so few that no twisting or buckling takes place. The very slight difference from roll to roll is well brought out in Figs. 2 and 3, which show, respectively, the gradual shaping of a dropper and of a standard. The inventor informs us that he can roll galvanized strip without in any way interfering with the galvanizing.

The form taken by the mill is shown in Fig. 4. Its working will be quite clear. The rolls are all geared together, and are driven from the 24-inch pulley at the left hand. In the particular machine which we saw the two fly wheels in the middle were omitted, but they might be required if heavy work were done. The design of the machine is such that the changes necessary in order to roll different sections are easily made. The whole construction is substantial—much more so, indeed, in the machine which we saw than was needed for the work being done; but then, by changing the rolls, it might have been made ready for heavier work.

The passage of the strip through the machine is made

easy, and the work kept in a straight line, by the placing of a series of small rollers in sets of four on each side of the strip and between each pair of main rollers. These small rollers are made in accordance with Fig. 5. The

machine should mold 10,000 droppers, 3 feet long each, in a day of ten hours.

The dropper section, shown in Fig. 1, is by no means the only section which the inventor claims to be able

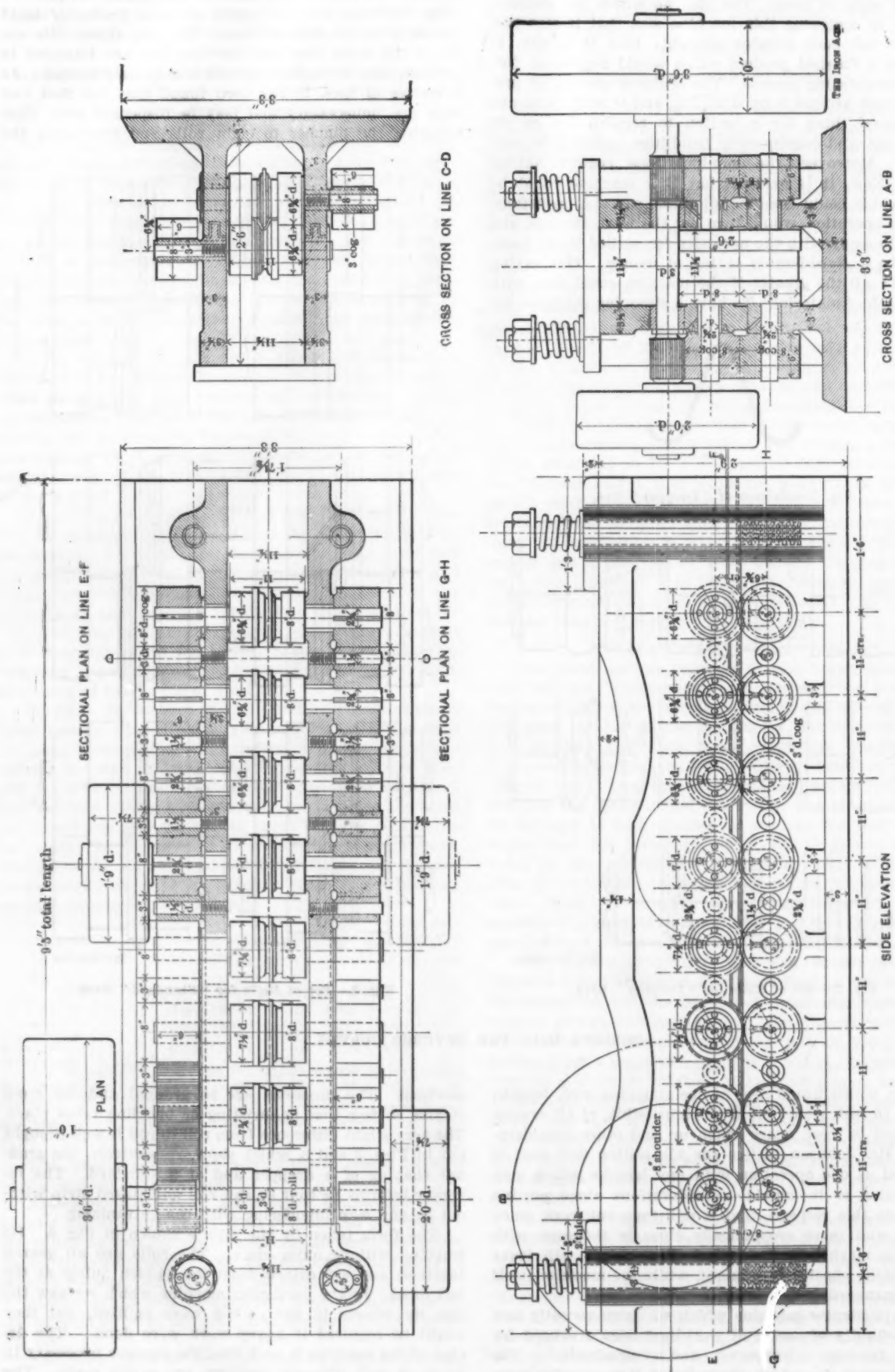


Fig. 4.—Side Elevation and Sectional Plan and Elevations of Mill for Rolling Reverse Curves.

inventor claims that—due in part to these rollers—the work of feeding the machine is so easy that skilled labor may be dispensed with and boys employed to carry out the necessary operations. We were informed that, allowing for a certain amount of loss of time in feeding, the

to roll with his machine. In Fig. 6 will be found a number of other forms, these, of course, not being drawn to scale. It will be noticed that these deal with thicknesses of steel up to 3-32 inch. The inventor also claims that his machine will do excellently for producing zinc and

lead moldings. Some few of the sections which this machine is stated to be capable of rolling in zinc are given in Fig. 7. Of course, any of the sections given for steel could also be molded in zinc.

As regards cost, the inventor states that when producing droppers he can carry out the work at one-eleventh the present cost of manufacture. With heavier gauges, up to 3-32 inch thick, he hopes for more than this, say one-thirteenth the present cost. With a double machine—that is to say, a machine provided with two sets of rolls placed side by side—the work, so it is claimed, could be done at one-twentieth of the present cost. It is thought, too, that in molding zinc the saving will be even greater than in the case of steel, for the breakages which are met with on the drawbench would be avoided, and there would be so much less loss of time and damage to material. At present, however, we have only seen the machine at work on steel droppers.

The saving in working just mentioned is due to the fact that the material has to be handled but once and with a small amount of skill, in place of the four or five times necessary in the case of curving some patterns in general use by stamping. Further, it is claimed that the space occupied is small, being some 8 feet long and 2 feet 9 inches wide for rolling gutters in any length, and that it has the following additional advantages: There is no danger to the operator when feeding the mill, as

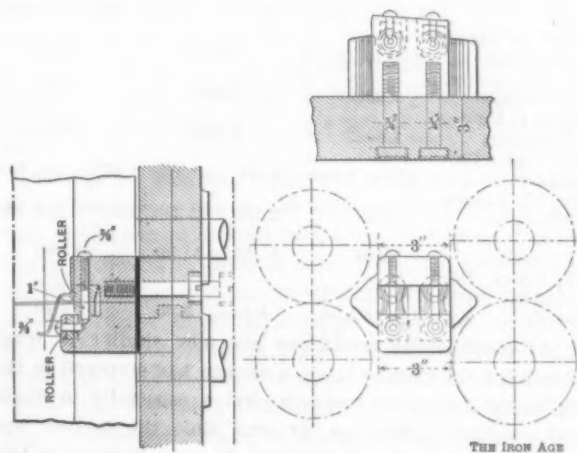


Fig. 5.—Guide Rolls Between Forming Beds.

ROLLING MILL FOR REVERSE CURVES.

his hands will not come near the machine; there is no waste, as the material is not damaged in the rolling presses; the strain put on the material when producing a certain shape at one blow is avoided; and the power required is one-tenth that necessary for a drawbench.—*Engineering.*

The Duty on Copper Pipes or Tubes.

The United States Board of General Appraisers, New York, have rendered a decision as to the rate of duty on certain copper pipes or tubes, sustaining the protest of the importer against the assessment of duty by the New York collector of customs. The decision is as follows:

"This protest is against the assessment of duty at the rate of 45 per cent., levied under the provisions of paragraph 193 of the act of July 24, 1897, on certain so-called copper pipes, which are claimed to be dutiable properly at the rate of 2½ cents per pound under the provisions of paragraph 176 of said act. It appears from the testimony that the articles are copper rollers—sections of copper pipe—14 inches in length, diameter inside 4¼ inches and outside 4 11-16 inches. They are perfectly plain and smooth both inside and out.

"It seems to us that, in the ordinary sense, as well as in the light of decisions hereinafter referred to, these articles fall properly within the provision for copper pipes in paragraph 176. It is true that in G. A. 4573

(T. D. 21,656) certain 'seamless copper cylinders for machine rolls,' 4 feet long and 9 inches in diameter, were held not to be dutiable as copper pipes, but this decision has been in effect overruled by the later decision, G. A. 4898 (T. D. 22,932), wherein it was held, following *Downing vs. United States* (99 Fed. Rep., 423), that metal cylinders closed at one end and used for holding gas were properly dutiable as tubes. And in G. A. 5080 (T. D. 23,522) flexible copper tubing was held to be dutiable as copper pipes, the words 'pipe' and 'tube' being used interchangeably throughout the opinion.

"The fact that pipes are largely used as conduits, while these articles are not to be so used, is not fatal to the appellant's contention, because paragraph 176 contains no limitation as to the use to which the merchandise therein mentioned is to be put. According to the lexicographical authorities, too, 'pipe' and 'tube' are practically synonymous.

"We are of the opinion that the articles under con-

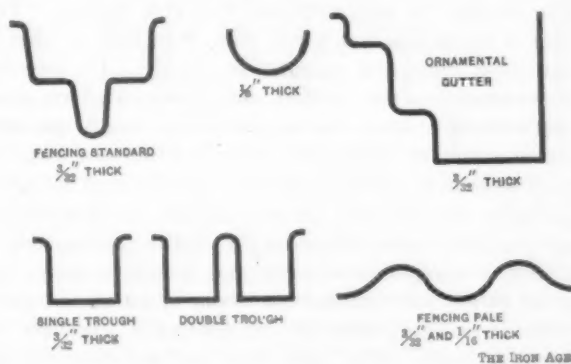


Fig. 6.—Sections Rolled in Steel.

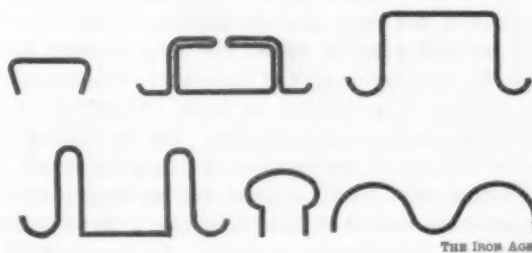


Fig. 7.—Forms Rolled from Zinc.

sideration are provided for in paragraph 176 as copper pipes, and we sustain the protest and reverse the decision of the collector accordingly."

The Treasury Department's Position.

Our Washington correspondent, referring to the above decision, says: "The Department officials are not disposed to agree with the board in its conclusions based upon dictionary definitions that the terms 'pipe,' 'tube,' &c., are practically synonymous. It is a well settled legal principle of tariff construction that trade designations must be given preference over dictionary definitions. The additional point is emphasized that in this case the use to which the articles are put removes them from the category of tubes or pipes, even assuming that such terms are synonymous. Not being especially provided for in any other paragraph of the tariff, they fall within the provisions of the basket clause. Even assuming that these rollers are actually sections of copper pipe, it is contended that in their condition as imported they are not pipes. It is pointed out that rings, sleeves, tires, &c., may be produced from pipes or tubes by cutting them up into various comparatively short lengths, but it is held that after being so reduced the articles are no longer pipes or tubes, but may even be said to be advanced in value by the process of cutting. In view of these objections to the board's decision, it is understood that the Department will either appeal this case or make a new one for the purpose of limiting the classification of pipes and tubes to articles actually used as such."

The Iron Age

New York, Thursday, June 30, 1904.

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GEORGE W. COPE, - - - - - ASSOCIATE EDITOR.
RICHARD R. WILLIAMS, - - - - - MANUFACTURING EDITOR.

A Mid-Year Review of Trade Conditions.

The half year just ending has been a remarkable period in several respects. To use the historic Georgian *simile*, it was like a ninepin, big in the middle and little at both ends. It began with trade seriously depressed. The demand for iron and steel was at a low ebb. The rate of production was barely more than half of what it had been only nine months previously. Furnacemen were restricting their output, and strenuous efforts were required to market the comparatively small quantity which was being turned out. Makers of finished iron and steel were in a similar condition. The demand for their products was not only checked by the conservatism of buyers, who were influenced by falling prices, but a winter of exceptional severity also interfered to an unusual extent with outdoor operations of all kinds. Railroads were subjected to extraordinary expenses in handling their traffic, and their net earnings shrank ominously, portending a season of rigid economy in expenditures for renewals and betterments. In February the greatest fire since that of Chicago in 1871 laid the heart of Baltimore in ashes, not only causing heavy losses to business men and insurance companies, but also exciting apprehension of other calamities to intensify the commercial depression. But as nothing further in the line of adversity immediately happened, the expectation of a heavy demand for building materials to replace the burned structures became a factor in forecasting an improvement in trade. In this respect it served a good purpose, even though the anticipated demand for iron and steel from that city developed very slowly. As spring approached, and outdoor activities were resumed, the usual seasonable demand was greatly augmented by the exceptional winter stoppage. For a time furnaces could hardly blow in fast enough, and steel works were crowded to their capacity. The United States Steel Corporation surprised the trade by making heavy purchases of pig iron, as their furnace capacity had been so greatly increased in 1903 that they were presumed to be fully able to meet all their pig iron requirements. Iron and steel prices advanced under the stimulus of the rising demand, and the impression grew that the revival in trade might prove more than temporary.

Those who fully appreciated the great expansion in the productive capacity of the iron and steel industry were not deceived by the apparent return of better times. They saw that the railroads were placing comparatively small orders for rails, bridges and rolling stock, and they knew that without the sustaining influence of a railroad demand to supplement the spring trade the iron and steel manufacturers would eventually find themselves running short of work. It was also seen that the labor troubles of last year had so far checked the spirit of enterprise that capital was not disposed to invest freely in buildings of magnitude, thus restricting the consumption of steel for building purposes. Shipbuilding had also fallen off, even on the lakes, and less steel would be consumed in that industry than had been the case for several years. Instead

of great expansion in some other direction, which would serve to counterbalance the slackness of the railroad demand for iron and steel, an even greater proportionate falling off occurred and thus no compensating influence was forthcoming. Efforts were made to increase the export trade in iron and steel, which had been comparatively neglected in the previous two years, but the business secured was much below expectations. As anticipated, a time came when iron and steel manufacturers found themselves running short of orders. This condition began to be reached in May, and in June the story of the opening of the year repeated itself in the closing of blast furnaces and steel works. Again do we find production being restricted, workmen thrown into idleness and prices declining. In this connection it is interesting to compare the present prices of leading iron and steel commodities with those prevailing six months and one year since, as given in the following table:

	June, 1903.	January, 1904.	June, 1904.
Bessemer pig, Pittsburgh ..	\$18.50 to \$19.35	\$13.85 to \$14.10	\$12.50 to \$13.35
Southern No. 2 pig, Cincinnati	17.25 to 18.25	12.00 to 12.50	11.75 to 12.00
Northern No. 2 pig, Chicago ..	19.00 to 20.00	14.00 to 14.50	13.25 to 13.50
Basic pig, Eastern Pa.	18.50 to 19.00	13.75 to 14.00	13.25 to 13.75
Steel billets, Pittsburgh ..	28.50 to 29.50	23.00	23.00
Steel plates, Pittsburgh ..	1.60c.	1.60c.	1.60c.
Steel bars, Pittsburgh ..	1.60c.	1.30c.	1.35c.
Bar iron, Chicago	1.70c. to 1.80c.	1.30c. to 1.40c.	1.27½c. to 1.35c.
No 27 sheets, Pittsburgh ..	2.65c.	2.15c. to 2.25c.	2.05 c. to 2.10c.
Wire nails, Pittsburgh ..	\$2.00	\$1.85 to \$1.90	\$1.90
Tin plates, 100 pounds, Pittsburgh	3.80 to 3.90	3.50 to 3.60	3.40

Although trade conditions are now similar to what they were six months since, a change has occurred in the sentiment pervading business circles, especially in financial quarters. Whereas, at that time the feeling was quite general that trade might grow worse instead of better, and financiers were so doubtful of the future that they inculcated conservatism among all who had dealings with them, now an approach to confidence is distinctly visible. Reports of lower prices, of works closing, of reduced railroad earnings and of dividends passed no longer depress values on the Stock Exchange, but the disposition is marked to regard such occurrences as results of the past instead of symptoms of coming depression. Favorable crop reports are largely given the credit for this display of cheerfulness, but the cause lies deeper than crop reports. At this time last year the crop prospects were also favorable, but no great comfort was then extracted from that fact because syndicates were liquidating and both good and doubtful securities were being sacrificed to raise money. Financial considerations overshadowed everything else. Failures were expected as a result of the frantic efforts of overloaded capitalists to transfer some of their burden to others. This year nothing of that kind has happened nor can it happen unless some totally unforeseen and unexpected calamity should suddenly derange our domestic economy. Money is so abundant that interest rates are lower than they have been for a decade, and the autumn movement of the crops is regarded by bankers with equanimity. Security values are hardening instead of falling, and the investment demand for bonds and high grade stocks has for some time been steadily increasing. With the subsidence of the fear of financial disturbances, confidence in better business conditions is a natural sequence, especially when a good crop prospect offers itself as a substantial basis for expecting

railroads to be favored with their usual traffic, not alone in moving crops, but in transporting other merchandise to supply the wants of prosperous agriculturists. Here rests the hope of the future. Possibly the uncertainty of the Presidential contest may prolong the conservatism in business circles, and possibly the new born feeling of confidence may prove to have been premature, but the outlook is undoubtedly much more favorable than it was six months since, and very much more so than at this time last year.

Teaching Salesmen Not to Sell.

A sagacious Western manufacturer said recently: "The first thing I do when I employ a new salesman is to try to teach him how not to sell goods. I explain to him that our plant produces only about 3 per cent. of the goods of our kind made in the United States, and my aim is to teach him how to pass up 97 per cent. of the business, if necessary, in favor of the 3 per cent. that will pay the highest price. I am able to secure higher than official prices, usually, and, being known as a high priced firm, pressure is not brought to bear on us to get lower than association prices, as it would be if we started out with association prices. We aim to make our goods better than others, and I find that by employing men of character and discretion, who are able to demonstrate to the trade the merits of our goods, we are able to get better than average prices. Here is where salesmanship comes in."

Except in rare and unnatural trade conditions, such as we had a year or two ago when buyers paid any price that would secure desired deliveries, the tendency of the buyer is always to hammer down the price, and the closing of the order is a test of strength between buyer and seller. If the buyer is stronger than the seller he will secure a concession in price. If the seller is stronger than the buyer he may be able to demonstrate to the buyer that the latter's purchase at a higher price is a good investment. Skill in the art of not taking orders is one of the prerequisites to successful salesmanship. It is the weak manufacturer or the weak salesman who cuts the price.

National Metal Trades Association Notes.

CINCINNATI, OHIO, June 27, 1904.—All shops in Chicago are now running and some have all the men they require. The National Metal Trades Association are continuing to send in men. Many of the workmen have broken away from the union and have signed individual contracts with their employers. Secretary Wuest has been particularly successful in getting them to do this. On Friday a murderous assault was committed on Attorney Alexander C. Allen. Mr. Allen is the attorney who brought nearly all the injunction suits in Chicago restraining strikers from lawless and criminal violence. He represented many local organizations in Chicago, had acted for the National Metal Trades Association in several cases, and is the Chicago attorney for the American Anti-Boycott Association. As Mr. Allen stepped out of the elevator in his office building to go home three men assaulted him with iron bars from behind, rendering him unconscious, and his condition is still critical. Steps have been taken by all the employers' organizations in Chicago to run down, not only the perpetrators of the outrage, but the instigators as well, and some sensational developments as to the instigators are expected. This attack shows that a broader field of crime is now contemplated by unionists. Slugging operations, hitherto confined to nonunion workers, seek in this attack the life of an attorney who dared bring an injunction suit. Mr. Allen is without any enemies save such as may be numbered among the unions, to whose criminal operations he has been instrumental in putting an end by injunction.

CORRESPONDENCE.

The Value of a Trade-Mark.

To the Editor: In the issue of your journal dated June 16, 1904, we find, under the above title, an editorial which, to the uninitiated, will be so misleading and so needlessly disturbing that a few words of explanation seem necessary.

A manufacturer's right to a trade-mark exists at common law without registration, and often in spite of registration. A manufacturer acquires and holds his right to a trade-mark by first adoption and continued use of that mark. If, afterward, another manufacturer shall register that same trade-mark in Washington for the same goods (the Patent Office officials being ignorant of the prior use), the prior user would have a superior right over the registrant, and could go into a court of equity asking for an injunction to stop the registrant from using that mark, and this notwithstanding the fact that the prior user had never registered the mark in Washington or offered to register it there or anywhere else.

The United States law which provides for registration of trade-marks in the Patent Office is restricted to the registration of a trade-mark used in commerce with foreign countries, as the editorial says, but that law does not in any respect affect or abridge a manufacturer's right to his trade-mark at common law. It only gives the manufacturer the added privilege of registering the mark, if used in commerce with foreign countries, followed by certain limited rights depending upon the registration as distinct from the common law right to the trade-mark—the right, for example, to bring suit in a Federal court upon the registration as such, where otherwise the owner of the mark might have to bring his action in a State court, against an infringer.

The Supreme Court decision referred to in the editorial is that handed down in November last, in the case of *Warner vs. Searle*.^{*} That decision did not "overturn" any law, practice or rights. It simply said (what was well understood when the law was enacted) that the Federal law providing for registration of trade-marks in the Patent Office was restricted by its express terms to trade-marks used in foreign commerce.

With these facts made clear, it will be seen that the very first sentence of your editorial is, to say the least, misleading, where it says: "The United States trade-mark is no longer a protection to trade within the country." A trade-mark in the United States is just as much of a protection of trade within the country as it ever was. Trade-mark registration (which is a totally different thing from the trade-mark itself and the right thereto at common law) is permitted only for trade-marks used in foreign commerce or with the Indian tribes.

Again, to say the least, it is misleading to say, as your editorial does, that "A national trade-mark is worthless excepting as it protects its owner in his trade with foreign countries." A trade-mark used anywhere throughout the United States, and "national" in that sense, is as valuable as ever it was, although used only within the limits of the United States.

So it is entirely untrue to say, as your editorial does, "If he has not taken up the matter of State registry . . . he is not protected in the United States, except upon such goods as are intended for the foreign market. . . . So far as its use in the domestic market is concerned, his trade-mark is absolutely unprotected. His competitor may use it at will, if he is inclined to employ such sharp practice." The manufacturer is protected in his trade-mark at common law upon goods intended for the domestic market. His competitor may *not* use the trade-mark at will. If a competitor does use the trade-mark in domestic commerce, the manufacturer who has the exclusive right to the trade-mark by reason of first adoption and continued use has the right to go into a court of equity and ask for an injunction and damages against that infringing competitor, and this without registration, either in the Patent Office or anywhere else.

It will be obvious that, except for special cases or

^{*} William A. Warner of Pennsylvania *versus* the Searle & Hereth Company of Illinois and Gideon D. Searle and others of Illinois. Decision rendered November 30, 1903. U. S. reports, Vol. 191, page 195.

special circumstances, registration of the trade-mark under the different State laws is not necessary. Nor is it necessary to register a trade-mark in the Patent Office, but, as a rule, it is commercially useful to do so.

HOWSON & HOWSON.

NEW YORK, June 24, 1904.

The Iron Industry of Germany.—I.

There has just been reprinted in pamphlet form a series of articles contributed to the *Revue de Metallurgie* by E. De Billy, a mining engineer of France, and J. Millus of Paris, an expert long connected with the *Credit Lyonnais*. It deals with the international competition in the iron industry, its first part being largely statistical, while the second part consists of an analysis of the resources and technical and economic advantages and drawbacks of the United States, of Great Britain and of Germany, the only countries studied as seriously entering into the broad problem.

While the presentation of the facts relating to the United States is interesting, and reveals the careful study which Mr. Millus had exceptional opportunities for making in this country, we need not go into detail in reference to it. The review of the situation in Germany is so searching, and in so concise a manner gives the principal facts, that we present below practically a full translation of the article.

In ten years Germany has more than doubled her production of pig iron, more than tripled that of steel, and has increased the output of her collieries by 65 per cent. The country, therefore, has made an advance greater even than the corresponding development attained in the United States. Like England, Germany to-day exports one-half of the metal produced by its furnaces or worked up into different shapes.

The Conditions Affecting the Supply of Materials to the German Iron Industry.

Germany possesses three great sources of supply of fuel: the Ruhr basin in Westphalia, which supplies more than one-half of the coal and 78 per cent. of the coke; the Silesian basin, which yields more than one-quarter of the coal and only 14 per cent. of the coke, and, finally, the Saar district, which furnishes 10 per cent. of the coal and 6 per cent. of the coke. The coals of the two districts last named yield only inferior coke.

The ore deposits are grouped in two principal districts—first, the district of the poor and high phosphorus Minettes of Lorraine and Luxemburg, which furnishes about 80 per cent. of the ores raised in Germany, and the second, the Siegen district, which, after having been the principal source of supply of the German iron industry, now furnishes only 10 per cent. of the iron ore production. Besides, the ores of this district are special in their character, owing to their high percentage of manganese. The Lahn district, which is near the Siegen district, still yields about 2½ per cent. of the total output. The rest of the production is widely scattered. The Minette ore district is located about 60 miles from the coal of the Saar district and about 180 miles from the coal of Westphalia. There is no water communication between these three regions, the canal from the Saar district toward Lorraine not being used by the iron industry, while the canalization of the Moselle River is still a project. The Siegen and Lahn districts are respectively 75 and 120 miles distant from the Westphalian collieries.

Silesia, while rich in fuel, is little favored from the point of view of ore supply. She has at her direct disposal only poor local deposits of minor extent, now almost exhausted, and the deposits of the Carpathian Mountains, in Hungary, which are also scattered and relatively limited in extent. Silesia, therefore, is dependent upon importation of ores from Sweden. Under these conditions, and in spite of the fact that Silesia makes 30 per cent. of the puddled iron made in Germany and Luxemburg, her industry does not interest the international trade. The production of pig iron in Silesia does not go beyond 7.5 per cent. of the total output of Germany. It may, therefore be ignored, like the Lahn, Siegen and Nassau districts, which together furnish only 7.25 per cent. of the

total pig iron product, and like several small interior districts, whose combined total is only 6 per cent. The entire balance, 79 per cent., of the pig iron comes from the west or from the northwest of Germany, and for its raw materials depends for fuel primarily upon the coal basin of the Ruhr and, to a lesser degree, upon that of the Saar, and for ores upon Lorraine and Luxemburg and upon foreign rich ores imported via the Rhine ports for the works located near the fuel. Therefore, two principal regions divide between them the working up of these raw materials—first, the Ruhr, which has the fuel at hand and receives the greater part of its ore supply from abroad, with additions from a number of domestic sources, and, second, the Minette district of Luxemburg, Lorraine and the Saar, which obtains all its ore locally and consumes exclusively the Ruhr coke, with the exception of the works in the Saar district. These two groups are of equal importance so far as their production of pig iron is concerned. Their development, however, has been along quite different lines. Westphalia, thanks to the diversity of its supply of materials, could attempt as metallurgical science developed all the different processes in the manufacture of iron and steel. The Minette district, which since it produces only ores high in phosphorus, was limited until 1880 to the manufacture of ordinary foundry and mill iron, the greater part of which was shipped out of the district to Westphalia. At this time the invention of Thomas and Gilchrist made it possible to work phosphoric irons in the converter, and by this process 350,000,000 tons of ore (which represent the reserve of the easily mined deposits of the Minette district) were rendered suitable for the manufacture of steel. Based upon such natural conditions, the production of steel in Germany, which in 1880 hardly reached 500,000 tons, quintupled in 10 years and quadrupled again in the 12 succeeding years, the movement being favored by the enormous development of the Westphalian coal basin, where drilling established a steadily growing area. Because of the abundance of its fuel, the existence of long established and numerous industries and its geographical position, it was the Westphalian district which profited more largely, particularly at the outstart, from this development. Lorraine, it is true, produced growing quantities of basic pig, but it was in the Ruhr basin that, particularly in the earlier years, steel works and rolling mills were built to work it up. It is only during the last five or six years that Lorraine, at first rather slow to put in Bessemer converters, and, above all, to build rolling mills, started on its phenomenal industrial career. Lorraine is now producing half as much steel as Westphalia herself. The greater part of the products of the Lorraine district are still shipped in the crude state, but finishing mills are multiplying, and though the special branches of manufacture are yet exclusively located near the coal, there is no doubt that they will soon develop as well in Lorraine, favored by reductions in cost of transportation and the increasingly perfect utilization of fuel.

The Great Producing Regions.

In 1903 Westphalia produced 39.75 per cent. of the total pig iron product in Germany, made 38.5 per cent. of the product of basic pig, and produced 60 per cent. of the crude steel. The Minette district made 39.2 per cent. of the pig iron, and 38.75 per cent. of the basic pig, and 30 per cent. of the steel. In the Minette district Luxemburg shares in the total to the extent of 23 per cent. pig iron and 4.50 per cent. of the steel; Lorraine to the extent of 9 per cent. of the pig iron and 13 per cent. of the steel, and the Saar district, with 7.25 per cent. of the pig iron and 13 per cent. of the steel.

Westphalia has 12 great industrial enterprises which possess blast furnaces, steel works and rolling mills, and all of them own collieries. Luxemburg has two great works, one of which has a colliery in Westphalia. The Saar district has four, with one under the same conditions; the Lorraine district, four, of which two own coal mines in the Ruhr region. These 21 enterprises, with two or three exceptions, produce or are about to produce from 250,000 to 400,000 tons of steel each. Krupp alone makes from 600,000 to 700,000 tons of steel per year. Silesia has only two large producers, and the rest of Ger-

many two more. Since Germany produces some 8,000,000 tons of steel, it will be readily observed how great is the power of these large makers of steel and how far concentration has been carried in that industry. A considerable part of this metal is afterward worked up by independent rolling mills, and a number of less important open hearth steel works furnish the rest of the output of crude steel. In 1902 the production of steel in Germany, inclusive of Luxemburg, was distributed as follows by processes of manufacture: Basic Bessemer steel, 4,888,000 tons, of which 2,220,000 are to be credited to the Minette district, the balance going to Westphalia; acid Bessemer steel, 342,000 tons, all made in Westphalia; basic open hearth steel, 2,304,000 tons; acid open hearth steel, 130,000 tons, principally produced in Westphalia, and 117,000 tons of crucible steel made in Westphalia. This accounts for a total of 7,781,000 tons. The output of finished iron was 838,000 tons.

From 1897 to 1902 the output of basic Bessemer steel increased by 50 per cent., and that of open hearth steel by 70 per cent. It will be observed that Germany produced nearly one-half as much open hearth steel as it makes basic Bessemer. Although there are a good many open hearth furnaces in Silesia, by far the greater number are in the Ruhr district, where they supply, besides the plate mills and the special metal for the large plants, a considerable number of minor producers.

OBITUARY.

JOSEPH HINERTH, president of the Highgate Foundry Company, died at his home in Highgate, Vt., June 11, 1904, aged 58 years. Mr. Hinertth learned the molder's trade at Champlain, N. Y., working afterward at Cleveland, Albany, and various places in the Province of Quebec. In 1882 he formed a partnership with Horatio Hoskins, purchasing the foundry at Highgate. Some years since he acquired the whole of it, and organized the Highgate Foundry Company, of which he was the principal owner, continuing to manage it until his death. He represented Highgate in the State Legislature, and was for three years first selectman. He is survived by his widow, one son and two daughters. The funeral services were conducted by Lafayette Commandery, Knights Templar of St. Albans, of which he was a member.

HERMAN F. WITTE, general superintendent of the Otis Elevator Company, died suddenly at his home in Yonkers, N. Y., June 26, aged 44 years. He was born at Blue Island, Ill. When 17 years of age he went to Chicago and learned the trade of machinist. Some years later he became connected with the Chicago Bridge Works and subsequently was appointed manager of the Crane Elevator Works. When that concern combined with the Otis Company Mr. Witte was appointed manager of the Chicago branch. Four years ago he became the general superintendent of the company.

HERBERT THICKETT, formerly sales manager for the American Steel Foundries, Pittsburgh, Pa., died last week at his home at Edgewood Park, Pa., after a long illness. He was born in Sheffield, England, but came to this country 30 years ago. He was employed in a managerial capacity with the Sharon Steel Casting Company, Sharon, Pa., when the concern was consolidated with the American Steel Casting Company, and Mr. Thickett then became manager of the Sharon, Alliance and Pittsburgh plants. On the formation of the American Steel Foundries he became sales manager, which position he filled until a short time ago, when ill health obliged his retirement.

THEODORE W. PHILLIPS, for many years prominent in the steam engine industry at Providence, R. I., died June 26, aged 68 years. Mr. Phillips was born in that city in 1836, and in 1856 entered the office of the Providence Steam Engine Company as bookkeeper. His application and industry made him an important man in the business and in 1872 he was made secretary of the company and given charge of the works. He was a successful salesman and did much to push the Greene engine, built by his company, in competition with the Corliss

engine, the two being the great exponents of the moderate speed and economical type of engine of their day. Mr. Phillips continued in charge of the works until the company reorganized as the Providence Engineering Works to manufacture the type of Corliss engine, which had first been put on the market by the Rice & Sargent Engine Company. About six years ago he was made Eastern representative of the Filer & Stowell Company, Milwaukee, and did much to introduce this engine into New England and other sections of the East.

VAUGHAN SNIDER, editor of the *Blacksmith and Wheelwright*, New York, died June 19, after an illness of only three days. Mr. Snider was born in Philadelphia, November 21, 1858. When a boy he entered the Burr Printing House, New York, as a compositor. Later he secured a position on the *Crockery and Glass Journal*, which he left to become assistant foreman of the composing room of the Trow Printing & Publishing Company. After serving some years in this capacity he took charge of a weekly paper for the Lovell Printing Company, which position he resigned to become foreman of the printing office of Gibb Brothers & Moran. Next he became connected with the M. T. Richardson Company as editor of the *Blacksmith and Wheelwright* and other journals published by that corporation. It can be said of him that he was enthusiastic in everything he undertook, ardent in his friendship, a tireless worker and generous to a fault. His untimely death is a loss to his numerous friends and especially to the company who had employed him in an editorial capacity for the past 12 years.

W. S. HUNGERFORD, manager of Ames & Co.'s spike works, Jersey City, N. J., died June 19, at his home in Arlington, N. J., from a complication of diseases, aged 50 years. He was born in Hadlyne, Conn., and graduated from Yale as a mining engineer. He subsequently graduated from the School of Mines at Freiberg, Germany. For the past 17 years he had been connected with Ames & Co. Mr. Hungerford was a member of the American Institute of Mining Engineers.

CHARLES BALL, a member of the Ball & Jewell Mfg. Company, Brooklyn, N. Y., manufacturers of machinery, died suddenly of heart disease on June 23, at Greenwood Lake, N. J., aged 59 years.

HENRY A. ROGERS, head of the firm of H. A. Rogers & Co., dealers in machinery and railroad supplies, 19 John street, New York, died June 25, at his home in New York City, after a brief illness, aged 60 years. Mr. Rogers was a native of New York and as a young man was employed by Walton Brothers. About 32 years ago he engaged in business for himself, in which he continued to the time of his death. He was president of the New York City Board of Education and a trustee or director of a number of financial and industrial enterprises.

I. A. FINCH, president of the Finch Mfg. Company, foundrymen and machinists, Scranton, Pa., died June 23 in New York City from kidney disease, for which he was being specially treated. He was 67 years old.

PERSONAL.

Walter H. Whiteside, recently manager of the retail and supply department of the Westinghouse Electric & Mfg. Company, Pittsburgh, and general manager of the Sawyer-Man Electric Company, New York, has resigned those positions to become general manager of sales for the Allis-Chalmers Company, Milwaukee, including their electrical department—i. e., the Bullock Electric Mfg. Company, Cincinnati. Mr. Whiteside will enter upon his new duties about the middle of July.

H. L. Daniels, chief of the fiber department of the International Harvester Company, Chicago, will sail this week for the Philippine Islands for a two months' stay.

Arthur A. Hamerschlag of the Technical Schools, at Pittsburgh, will spend the next month visiting the mills and factories in the Pittsburgh district in order that he may decide on plans he will use in preparing the work shops of the schools of the Carnegie Technical Institute.

Lewis G. Rowand, the inventor of the types of sep-

arators built by the Wetherill Separating Company, resigned from that company, and has since June 1 been connected with the New Jersey Zinc Company of New York.

A. Featherstone of C. & W. Walker, Limited, Donnington, near Newport, Salop, England, a well-known firm of structural engineers, is now in this country for a brief visit.

American Steel Foundries Stock Relisted.

The preferred and common stocks of the American Steel Foundries, which were stricken from the New York Stock Exchange list last January because of alleged irregularities in the financial statement, were last week readmitted to the regular list of the exchange. The listing application gives in detail the constituent properties of the company, and also a statement of the earnings for the nine months ending April 30, 1904. This shows, as was to have been expected in view of the conditions in the trade, a heavy falling off in profits. The net earnings for nine months were only \$414,945, as against earnings for the full fiscal year ended July 31, 1903, of \$1,760,938. Following is a comparative statement of the earnings of the company:

	Nine months ended April 30, 1904.	Fiscal year ended July 31, 1903.
Gross earnings.....	\$604,458	\$2,193,679
Less sundry adjustments.....	189,513	432,741
Net earnings.....	\$414,945	\$1,760,938
Other income.....	29,107	27,027
Totals.....	\$444,052	\$1,787,965
General expenses.....	137,930	208,122
Taxes.....	4,190	3,327
Interest on loans.....	4,389	19,562
Interest on bonded debt, August 31, 1903, to April 30, 1904.....	17,662	23,550
Balance.....	\$279,881	\$1,533,403
Previous balance.....	1,533,403	
	\$1,813,284	
Less adjustments by Audit Company of New York, affecting period prior to July 31, 1903.....	123,555	
Surplus available for dividends.....	\$1,689,729	

The gross earnings as given are the earnings after deducting administration and selling expenses.

Following is a copy of the interim balance sheet of the company as of January 31, 1904, certified to by the Audit Company of New York:

Assets.	
Cost of properties—Purchase price August 1, 1902.....	\$30,500,000
Deduct—Net current assets as taken over by the company, including \$500,000 working capital contributed by vendor in compliance with contract.....	\$1,895,021
Less—Shrinkage and depreciation of securities.....	233,807
	1,661,213
Net additions to plant since August 1, 1902.....	\$28,838,786
Investments.....	454,012
Notes and bills receivable.....	556,421
Accounts receivable less reserves.....	287,930
Raw material, supplies, &c.....	907,731
Cash on hand and in banks.....	551,921
Insurance paid in advance.....	610,026
Deferred charges to operations, &c.....	14,547
	98,362
Total.....	\$32,319,738
Liabilities.	
Preferred stock.....	\$15,500,000
Common stock.....	15,500,000
Bonds of American Steel Castings Company outstanding (due November 1, 1912).....	471,000
Accounts payable.....	271,820
Sundry reserves.....	29,564
Profit and loss account:	
Balance July 31, 1903.....	\$835,203
Deduct—Adjustments.....	123,555
Balance July 31, 1903, as adjusted..	\$711,648
Less—Preferred dividend paid September 1, 1903.....	232,500
	\$479,148
Add—Net income for six months ending January 31, 1904, before charging depreciation on buildings, \$300,706; less, preferred dividend paid December 1, 1903, \$232,500.....	68,205
Balance January 31, 1904.....	547,354
Total.....	\$32,319,738

In their listing application the company agree that they will make annual reports and statements in accordance with the suggestions and requirements of the New York Stock Exchange. The company also agree that they will not dispose of any of their stated interests in the con-

stituent companies mentioned except on direct authorization of their stockholders.

By recent amendments to the by-laws it is provided among other things that the annual meeting of the stockholders of the company shall be held on the first Tuesday of October in each year after 1903; that regular meetings of the Board of Directors shall be held quarterly, on the first Thursday of April, July, October and January in each year.

Quick Work on the Chicago First National Bank Building.

A record breaking piece of work has just been completed in Chicago in the setting of the steel work for the new section of the First National Bank Building. D. H. Burnham & Co. are architects for the building, and the contract for setting the steel was given to Charles Volkmann & Co., Chicago. The first column was set April 15, and on June 15 one of the last tiers of the roof columns at the northwest corner of the building was put in place. Deducting Sundays, holidays and days when weather prevented work, 45 days intervened, during which time about 4500 tons of steel were erected, making an average of 100 tons per day. Some days as high as 250 tons were erected. The work was accomplished by a force of about 75 men, working 8 hours and 40 minutes to the day, under the supervision of Mr. Volkmann personally and Otto Klein, his superintendent. The working force was divided into a crew for each of four derricks, followed by a bolting gang, in turn followed by a gang who put in the small iron work.

This new building, known as Section B of the First National Bank, occupies a space of 115½ x 202 feet, 18 stories in height. These stories are as follows: Basement story, 14 feet; bank story, 31 feet 8 inches; third story or gallery floor, 15 feet; fourth to fifteenth stories, each 12 feet 11 inches; sixteenth story, 12 feet 9 inches; seventeenth story, 11 feet 9 inches; eighteenth story or attic, 14 feet 2 inches. The steel work is supported by the following columns: Basement to bank floor, 42½ feet; bank and gallery floor, 46 feet 8 inches; fourth to fourteenth stories, each 25 feet 10 inches; sixteenth story to roof, 38 feet 8 inches. The columns for the bank floor weighed about 12 tons each. Some of the girders used were of exceptional size, notably the plate girders supporting the walls of the court in the center of the building, which are 60 feet 6 inches in length, 6 feet high, weighing 19 tons each.

All steel work for the building was delivered in Chicago before work was begun and stored in a yard leased for the purpose at Twelfth street, where the material was sorted into piles according to floors for expedition in hauling. The steel work had to be hauled piece by piece from this yard a distance of 2 miles through the downtown streets to the building site and hoisted outside the building by means of derricks. Two of these are boom derricks, with 70-foot booms, working on the new section, while two others worked either from the roof of the completed section or used columns of the old section for masts.

When the building is completed the two sections combined will cover a floor area of 202 feet on Dearborn street and 242 feet on Monroe street, making what is believed to be the largest office building in the world. Section A, which is now occupied by the First National Bank and by offices, was completed last June, the same contractor setting the steel on that section in about four months. The steel for Section B aggregates about 5000 tons, while that for Section A was nearly 7000 tons, making a total of about 12,000 tons for the whole building. The steel was furnished by the Carnegie Steel Company. The First National Bank will occupy the bank floor of the whole building, and the basement floor will be occupied by the First Trust and Savings Bank and their safety deposit vaults. T. R. Tinsley is superintendent for D. H. Burnham & Co., the architects.

The work is also noteworthy from the fact that no serious accident has occurred during the construction of the building. Riveting was done by hand, the joints in the four lower stories being riveted, while those of the upper stories were secured by bolts.

MANUFACTURING.

Iron and Steel.

The Northern Iron Company, Port Henry, N. Y., have awarded the contract for the relining of their blast furnace and four stoves to the Amaler Engineering Company, Pittsburgh. This company have also secured a contract from the McClure Tin Plate Company, Washington, Pa., for building their sheet and pair furnaces.

The Eastern record of the National Tube Company for making pipe was broken last week by the employees of the works in the Chester, Pa., department of the corporation. The men, in ten hours' work on 5½-inch casings, succeeded in turning out 605 casings, and during the night turn of the same day 627 casings were turned out. Previous to the performance of the Chester department the record for the same size casings stood for several months at 584. There is considerable rivalry between the various departments of the corporation throughout the country.

The Ohio Iron & Steel Company, Lowellville, Ohio, expect to bank their Mary Furnace about July 10, and it will remain banked until the iron market shows betterment.

A. M. Castle & Co., iron and steel merchants, Chicago, who were located in Machinery Hall, at 54-56 South Canal street, which was recently destroyed by fire, have secured permanent quarters at 55-59 North Jefferson street, formerly occupied by the Thompson-Hoof Company. The company will not be fully established in their new place of business before a week or ten days, but are in a position to take orders at their temporary office, 59-61 South Canal street.

The Standard Tin Plate Company, Canonsburg, Pa., are now operating their new tin plate plant to nearly full capacity, and they are to start another hot mill in July. They are making regular shipments of tin plate, ternes and charcoal plates.

The Waynesburg Forge, Sheet & Tin Plate Mills, Waynesburg, Pa., expect to be ready by July 15 to turn out galvanized and corrugated iron.

At the annual meeting of the stockholders of the Burden Iron Company, Troy, N. Y., held June 15, the following trustees were elected: James A. Burden, I. Townsend Burden, John L. Arts, James A. Burden, Jr., Williams P. Burden and Arthur S. Burden. The trustees elected the following officers: President, James A. Burden; vice-president, James A. Burden, Jr.; general manager, John L. Arts; secretary, Nicholas J. Gable.

The property of the Omega Steel Company, New Haven, Conn., will be sold at public auction, July 26, by order of the Court. In case the receiver can advantageously dispose of the property in the meantime, he has the Court's permission to do so. The upset figure is placed at about \$3500, the amount of the liabilities.

The Mason Multiple Washer Company's plant at Oxford, Pa., is to be increased by the addition of a rolling mill and a plant for the manufacture of kegs and boxes for shipping the finished product. This is the third increase in size of the plant during the year. The company are overrun with orders, and just refused a large order from the Pennsylvania Railroad Company for the reason that there was too much work ahead to insure prompt delivery.

The Damascus Steel Company, Des Moines, Iowa, capitalized at \$2,000,000, whose plant was located in New Brighton, Pa., have called a meeting of the stockholders for July 11 to sanction the winding up of their affairs. The plant was recently purchased by the Damascus Crucible Steel Casting Company, a new organization, who will operate it for the manufacture of steel castings.

Ralph H. Beach, formerly connected with the General Electric Company, New York, and others who have been operating the Tula iron works and mines under lease at Ferreria de Tula, Mexico, have organized the Tula Iron Company, with a capital stock of \$3,000,000, and have purchased the property. It is understood that a number of improvements are to be made to the works. Mr. Beach has severed his connection with the General Electric Company, and has gone to Mexico, where he will manage the company.

The new furnace of the Lookout Mountain Iron Company, Battelle, Ala., is practically completed, but owing to considerable odds and ends to be finished, the stack will not be blown in until some time in August. The furnace and stoves are being dried out, track is being laid from the mines to the furnace, and tipples at the ore mines are now being erected.

The Kittanning Iron & Steel Mfg. Company, Kittanning, Pa., have closed down their rolling mill for an indefinite period on account of the dull demand for muck bar. Their Rebecca blast furnace will also probably blow out early in July.

A charter has been issued at Harrisburg, Pa., to the Keystone Axle Works of Pittsburgh, Pa., with a capital of \$48,000. Irwin Neckerman of Edgewood, Pa., is a director.

A third appraisalment has been made of the property of the Zanesville Iron Works, Zanesville, Ohio, now in the hands of

a receiver. The new figure is \$36,000. Two attempts have been made to sell the property for \$51,000.

General Machinery.

There is some talk of replacing Machinery Hall, 54-56 South Canal street, Chicago, which was recently destroyed by fire, with another six-story structure, 60 x 150 feet, although Maypole Brothers, the owners of the property, state that plans have not yet been definitely formulated. In the event that a new structure is erected it is the purpose of at least four of the old tenants to remove into the new building. Of these Chas. G. Stevens, finished iron and steel, and the Union Drawn Steel Company are temporarily occupying the second floor at 50-52 South Canal street, while Orr & Sembower, makers of engines and boilers, and the American Hoist & Derrick Company are at 68-70 South Canal street.

The Chicago, Milwaukee & St. Paul Railroad contemplate the erection of a new combination building, 575 feet long, 90 feet wide and two stories high, for the car department at West Milwaukee, which is to provide space for upholstering, additional room for cabinet work, paint mixing department, tin and copper shop, silver plating, room for the electrical workers, and a storeroom for caring for the storm sash in summer and other storage purposes. The company also have under way three roundhouses, one of 30 stalls at West Milwaukee, an addition of 19 stalls at the Western avenue yards, Chicago, and a 35-stall house at the Galewood yard, Chicago. The machinery and tools for the above improvements are already arranged for.

James & Foote, manufacturers of gear cutting machinery, who were formerly located in Machinery Hall at 54-56 South Canal street, Chicago, which was destroyed by fire, have removed to 24-26 South Clinton street, where they are fitting up permanent offices on the second floor. It will be three or four weeks before the firm will be able to handle orders.

The Chicago Tool & Supply Company, Monadnock Block, Chicago, were incorporated June 17 with a capital stock of \$15,000 for the manufacture and sale of pneumatic and electrical tools and supplies. Carl R. Green, George H. Hayes and F. W. Buchanan are the active incorporators. The incorporators are men who have had long experience in pneumatic tools. Mr. Green owns patents covering a new type of chipping and riveting hammer which has a number of novel features. Mr. Hayes is the patentee of the Hayes electrical drill, a machine that will drill a hole ¾ inch and smaller in iron. The drill has extremely high speed, and great economy in operation is claimed.

The Titusville Forge Company, Titusville, Pa., have increased their machine shop capacity by the recent installation of two new 15-inch Betts slotters and two new 36-inch lathes. They have also increased their forge shop capacity by the addition of a 5000-pound Chambersburg steam hammer and a 1600-pound David Bell steam hammer. These additions, with their former extensive equipment, place them in a position to furnish every description of both iron and steel forgings with the greatest dispatch.

The Landis Machine Company, Waynesboro, Pa., have recently added to their equipment a complete line of the latest pattern making machinery. Their patent bolt cutter is giving satisfactory results far beyond their anticipations.

The Braddock Machine & Mfg. Company, Braddock, Pa., have shipped to the St. Louis Plate Glass Company, St. Louis, Mo., a complete casting table outfit comprising a roller, table, hydraulic cylinders and plungers, ball bearing center, girders, jacks, wheels and axles with ball bearings, also grinder and polisher runners, spiders, &c. The table is composed of nine cast iron sections 15 inches wide, 9 inches thick and 18 feet long, joined at both ends with keys and three tie rods bolting through the sides. Air furnace iron was used to secure a uniform grade, each section being of the same density. After the castings had been planed on the top surface and both sides they showed a close, even grained iron without a blemish. The roller was 20 inches diameter with 12-inch core by 14 feet long. This was made of a close charcoal air furnace iron and had over 4000 corrugations 2-100 inch deep turned on its surface, there being 28 corrugations to the inch. The Braddock Machine & Mfg. Company have installed a 10-foot planer and 16-foot boring mill and are equipped to manufacture all kinds of machinery for plate glass plants. The company have two foundries of 60 tons capacity and can make castings up to 25 tons in weight.

It is announced that the Allen Machine Company, Lynn and Haverhill, Mass., have purchased the Haverhill Machine Company's plant at Haverhill and will conduct it as a branch establishment.

The report is generally credited that the New York Central have decided to abandon their Boston & Albany shops at Allston, Mass., and Rensselaer, N. Y., and concentrate the department at West Springfield, where additions to the shops will be built. About 90 men are employed at Allston and 30 at Rensselaer.

The Globe Machine & Stamping Company, Cleveland, Ohio, have acquired the plant and business which have been carried on for the past 30 years by Otto Koningslow, 45-49 Michigan street. The equipment of machinery and other facilities are to be greatly increased for general machine work, punching and

forming dies, sheet metal stamping special machinery, &c. Mr. Koningslow will remain with the company as a stockholder, director and superintendent.

The Buffalo Forge Company, Buffalo, N. Y., are building a forge equipment for the Olds Gasoline Engine Works, Detroit, Mich. The order includes complete blowers, exhausters, forges, piping, &c. They are also building the electric light engines for the Grand Hotel, New York, there being five engines in the outfit. They are also engaged upon a drying equipment for the American Malting Company, Milwaukee, Wis., which includes six large outfits; a drying outfit for the American Smokeless Powder Company, Boston, Mass.; heating and ventilating apparatus for the Third Baptist Church, St. Louis, Mo.; equipment for the Lehigh Valley Railroad power houses at Sayre, Pa., consisting of two 190-inch fans with direct connected cross compound engines. For the Manual Training High School at Louisville, Ky., they are getting out a complete down draft forge shop equipment for 47 fires; a mine ventilating fan for the Consolidated Coal Company, Baltimore; two outfits for the Ohio & Hocking Coal Company; complete heating and ventilating plant and induced draft apparatus for the Issaqueena Cotton Mills, Central, S. C. For export they have orders in hand for two large forced draft fans for the Tokio Street Railway, Tokio, Japan; several drying outfits for the Excelsior & Phoenix Fire Resisting Plates Company, Palmerston, England, and also a number of special drying outfits for the Nobels Explosives Company, Limited, England.

The Geo. L. Squier Mfg. Company, Buffalo, N. Y., who manufacture sugar machinery, coffee, rice and general plantation machinery, report business as excellent, they having many orders in hand both for domestic and export shipment. They have recently shipped a large sugar cane mill to Sunset, La., and are now executing orders for similar equipments for India, Mexico, Honduras, Porto Rico and the West Coast of Africa. They are also building coffee machinery for Argentine Republic, Colombia, India, South Africa and other countries. A recent interesting outfit consists of an entire equipment for coffee drying for Mexico.

The National Machine Company, Hartford, Conn., who recently purchased the entire machine equipment of the Woodward & Rogers Company, will continue the manufacture of the Woodward & Rogers drills for the present. B. S. Woodward, formerly of the Woodward & Rogers Company, has been made superintendent of this department of the National Machine Company's business.

Power Plant Equipment.

The recently incorporated Bartlett-Tewksbury Machine Mfg. Company, Birmingham, Ala., are building a new plant, which will be equipped with modern machinery for the manufacture of steam engines and saw mill machinery. They expect to be ready for business about July 20. T. E. E. Bartlett is president.

The William A. Harris Steam Engine Company, Providence, R. I., have recently shipped an engine to the Reading Pure Ice Company, Reading, England, and another to London, England, for installation in the plant of the Segar-Emery Company, a branch of the George D. Emery Company, Chelsea, Mass.

The Board of Public Works of Milwaukee has readvertised for bids for a new pumping engine with a capacity of 20,000,000 gallons every 24 hours, to be installed at the North Point water works in that city. One of the conditions required is that the companies making bids shall work only eight hours a day.

The Buffalo Steam Pump Company, Buffalo, N. Y., have recently had orders for fire underwriter pumps from the following: The Paquet Stores, Quebec, P. Q.; Underwood & Dupuy, Lake Arthur, La.; Boston Woven Hose & Rubber Company, Boston, Mass.; Griswold Mfg. Company, Erie, Pa.; Hoover Wagon Company, York, Pa.; Scott & Son, Saugus, Mass.; a carload of pumps for the Bay City Engineering Company, Los Angeles, Cal.; a large electrically driven automatic return pump and receiver for the Third Baptist Church, to be built at St. Louis, Mo., and for a number of pumps for the New York public schools. They are also engaged upon export orders received recently through their agencies in England, Denmark and Brazil.

The Kerr Turbine Company have been incorporated at Wells-ville, N. Y., with a capital of \$100,000. Incorporators: C. V. Kerr, Rutherford, N. J.; T. J. Applebee and W. L. Ward, Wells-ville, N. Y.

J. W. Lathrop, manufacturer of gasoline engines, Mystic, Conn., has decided not to remove his plant to Norwich, Conn., as was contemplated. An arrangement has been made with the town by which the building in which the town court and lock-up are situated, standing between Mr. Lathrop's two shops, will be removed, giving him the opportunity to connect the buildings, the addition to provide a considerable additional manufacturing space.

The Bruce Company, Cleveland, recently incorporated with \$100,000 capital stock, are preparing to establish a factory in that city for the manufacture of gasoline engines of various types.

The Marine Boiler Works Company, Toledo, Ohio, have on their books orders for 67 boilers of the largest size. They are just completing four large boilers, each weighing 40 tons, for

the Craig Ship Building Company, Toledo, to be installed in the steamer "City of Benton Harbor," and four large square box boilers for the Hocking Valley Railway Company.

The Board of Trustees of the Dayton State Hospital, Dayton, Ohio, will receive proposals until July 16 for the construction of an engine and boiler house and stack, together with all necessary equipment, according to plans prepared by Peters, Burns & Pretzinger, Dayton, Ohio.

The Board of Trustees of the Massillon State Hospital, Massillon, Ohio, will receive proposals until July 9 for the construction of an engine and boiler house, together with the necessary equipment, consisting of one 450 horse-power engine, two 350 horse-power boilers, one 300-kw. generator and switchboard, all to be according to plans prepared by Frank L. Packard, 1214 New Hayden Building, Columbus, Ohio.

Foundries.

The Findlay Foundry & Machine Company, Findlay, Ohio, recently incorporated, are in the market for considerable machinery to equip their building, which is 100 x 200 feet in size. They will do a general foundry and machine business and will make a specialty of the manufacture of Field steam pump. Field's pumping power, pumping jack and rig irons and oil well supplies. They will have entire control of the former business of the Vanburen, Heck & Marvin Company, with the exception of the Buckeye traction ditcher.

The Foundry Company, Highgate, Vt., which suspended business because of the death of Joseph Hinerth, the proprietor, have resumed business under the management of Constance Hinerth and Thomas Sears, former foremen in the shop.

The Davis & Ludwig Foundry Company, Chicago, have been forced into the hands of a receiver on petitions from the S. Obermayer Company and the National Security Company. The assets are placed at \$10,000 and the liabilities \$25,000. James Frake, 132 La Salle street, Chicago, was appointed receiver.

The American Foundry Company, Lelaps, Ohio, have been organized, with W. W. Edwards, president; J. H. Edwards, vice-president; H. C. Edwards, secretary; F. D. Rosenberger, treasurer, and John McGlenn, general manager. The capital stock is \$50,000. The common stock, \$25,000, was taken by the Buckeye Stove Company and John McGlenn, and the 7 per cent. preferred stock, in the same amount, was taken by popular subscription. The company will erect a foundry, 60 x 200 feet, part of which will be two stories high.

The Delphos Foundry Company, Delphos, Ohio, have awarded contracts for the erection of their buildings to T. W. Skelding, Toledo, the price being \$12,728. The main building will be 60 x 120 feet, besides which there will be a cupola building, boiler and engine room, pattern shop, sheds, &c., the main structures to be of steel. The plant will be located on the Cincinnati, Hamilton & Dayton Railway tracks, and a siding is being put in. The plant is to be completed within three months.

Fires.

On June 21 the plants of the Duff Construction Company, Allegheny Cornice & Skylight Company, Allegheny Automobile Company and the Allegheny Foundry, Allegheny City, Pa., were burned. The loss is placed at \$75,000.

The plant of the Northwest Foundry Company, Detroit, Mich., was damaged \$5000 by fire June 18.

The Electro-Dynamic Company's plant, at Philadelphia, Pa., was damaged \$20,000 by fire on June 23.

On June 22 fire did \$50,000 damage to the plant of the National Conduit & Cable Company, Hastings-on-the-Hudson, N. Y.

The Kimball Paper Mills, Glens Falls, N. Y., were burned June 26, causing a loss of \$20,000.

In a \$500,000 fire at Paterson, N. J., June 22, the plants of the P. S. Van Kirk Lumber Company, I. A. Hall's silk mills and several other establishments were destroyed.

Bridges and Buildings.

The Pennsylvania Steel Company's bridge and construction department, at Steelton, Pa., is turning out steel in large quantities for the proposed Blackwell Island Bridge, New York.

The Belmont Iron Works, having offices and works in Philadelphia, have made arrangements for power from an electric light plant in Chester and have planned for sidings from the Pennsylvania Railroad, for their contemplated new plant at Eddystone, Pa. This will cover a large site, which was secured several months ago.

Hardware.

Gonce Lock Mfg. Company, Belt and Cleveland streets, Chattanooga, Tenn., have been incorporated with a capital stock of \$10,000. The company will manufacture keyless combination locks, patents on which have been secured in the United States and leading foreign countries.

The C. S. Garman Company, Hanover, Pa., C. S. Garman, president and manager, incorporated March 26 last, are manufacturing Sarven, Warner, Star and plain wheels, spokes, hubs, rims, shafts, neck yokes, poles, whiffletrees, &c.

The J. R. Torrey Razor Company of Worcester, Mass., are to erect an addition to their shop, 45 x 90 feet, and four stories, to increase their manufacturing facilities.

The Chamberlain Weather Strip Company, Incorporated, Pittsburgh, were chartered at Harrisburg with a capital of \$5000. James Bredin of Butler, Pa., is a director.

Miscellaneous.

An extensive plant is to be erected by the Sub-Target Gun Company, 5 King street, West, Toronto, Canada, who were recently incorporated with a capital stock of \$1,000,000, for the manufacture of firearms and machinery. The principal product will be the sub-target gun machine, an American invention, the Canadian rights for which the company have secured. This machine is used to practice shooting, and the same results can be obtained with it in a small room as can be secured by the ordinary rifle in the open. It is claimed that 500 yards can be carried in an ordinary room. The officers and directors are: J. H. Tilden, president; F. O. Lewis, vice-president; Col. W. G. Hurdman, secretary; H. P. Coburn, treasurer; Col. H. M. Pellatt, Sir Adolph Caron, H. H. Wickwire, W. J. McCormack, H. H. Dewart, J. H. Jewell, R. C. Levesconte, Robt. Harmer.

The Minneapolis & St. Louis Railroad have just entered into a contract with the American Car & Foundry Company for the purchase of 500 60,000-pound capacity box cars.

The recently incorporated Tritt Electrical Mfg. Company, South Bend, Ind., have rented a plant where they will manufacture sparking dynamos, spark coils, spark plugs, electrical specialties and automobile and gas engine sundries.

The Steam Carriage & Boiler Company and the Howard Thermostat Company, Oswego, N. Y., have consolidated, with a combined capital stock of \$110,000. The company will increase their facilities.

Last week the Sterlingworth Pressed Steel Car Company, who purchased land in Eddystone, Pa., several months ago, had a force of engineers at work staking out the ground with the intention of starting their plant toward the close of summer.

There was an error in the statement that the Aughe Plow Works, operated by the Parrott Mfg. Company, Dayton, Ohio, were to move their plant to West Mansfield, the merchants of which city were said to have subscribed \$25,000 for that purpose. The Parrott Company are the sole manufacturers of the Aughe plow and have no intention of moving their plant.

The Imboden Combination Harrow & Roller Company, Lebanon, Pa., have been chartered at Harrisburg, Pa., with a capital of \$5000. Isaac C., Philip and Grant Imboden of Lebanon are the incorporators.

The New York Brazing Company have been organized to take over the business of the American Brazing Company, New York, and to handle the territory exclusively, in accordance with the rights purchased by them for the use of Ferrofix in brazing all kinds of castings. It is their intention to enlarge the plant at 329 West Twelfth street, and they expect to open up a much larger plant for brazing castings up to 50 tons. The present plant will then be used for smaller work. Besides cast iron the company will braze brass, copper, bronze, steel and all other metals. E. B. Ward is general manager.

The Smith Boltless Rail Joint Company, Homestead, Pa., have organized, and it is likely that they will build a plant for the manufacture of their patented rail joint. Address W. W. Mechling, president.

The New England Enameling Company, Middletown, Conn., are erecting three new buildings—one for the galvanizing department, another for the enameling department and the third for the packing and storage of manufactured products.

The Board of Trade of Berea, Ohio, has undertaken to organize a company for the purpose of establishing a factory at Berea for the manufacture of a device for plating soft metals, the invention of N. C. Clewell of Canton, Ohio. Arthur H. Wyatt & Co., Park Building, Cleveland, are promoting the project.

The Van Dorn Iron Works, Cleveland, have secured a contract from the Board of Public Safety of Youngstown, Ohio, for steel cells for a large annex to the city jail. O. D. Williams, Youngstown, has the contract for the rough hardware; D. S. Hoover & Co., Youngstown, for fire proofing; W. H. Burnett, Youngstown, for heating and ventilating, and Dalzell Brothers, Youngstown, for galvanized iron, tin and slate.

The National Association of Engine and Boat Manufacturers met last Monday and elected an executive committee, which will meet July 15 and elect officers for the association. The association now has a membership representing 54 firms engaged in the manufacture of power boats and marine engines.

The C. A. Dielhenn Company, Cleveland, have been formed by C. A. Dielhenn, A. A. Holbeck and others, and have established offices at 1524 Williamson Building, where they will act as general sales agents for engines, boilers, motors, power transmission equipment, &c.

Trade Publications.

Machine Tools.—A new catalogue from the Chas. G. Smith Company, Pittsburgh, Pa., contains about 125 pages of heavy plate paper and is practically an album of machine tool illustrations showing the machines for which this company is selling agent. These include the Becker-Brainard milling machines and universal cutter and tool grinders; Bullard boring and turning mills, rapid production lathes and turret machines; Blaisdell engine lathes and drill presses; Whitcomb planers; Mueller radial drills; Bath grinders; Safety Emery Wheel Company grinders; Barrett horizontal boring and facing machines; Trethaway steam hammers; Lucas power forcing presses; Frisbie friction clutch pulleys; Standard Morgan bolt threaders; Standard Wieland pipe-threading and cutting off machines. To make the book one for convenient reference an alphabetical index is appended.

Works of the Westinghouse Company.—Under this heading this firm have recently issued a booklet very artistically compiled and profusely illustrated with views in and about their works, accompanied with an interesting and instructive account. The public has long been familiar with the product of the company, and it is a privilege to become acquainted in so attractive a way with the works wherein it originates.

Air and Gas Compressors.—The Rand Drill Company, 128 Broadway, New York City, have recently issued a pamphlet illustrating and describing briefly some of their standard types of air and gas compressors. The subject matter is given in a condensed form, with small illustrations, complete tables of dimensions and a brief general description of each type, making it a handy guide to the selection of the form best suited to the needs of the purchaser.

Electrical Apparatus.—Ten bulletins, Nos. 1001 to 1010, from the Electric Controller & Supply Company of Cleveland, Ohio, have been prepared especially for distribution at the World's Fair from the firm's exhibit in Section 5 in the Electricity Building. The subjects treated are, in order, controllers, resistance units, brakes, solenoids and electro-magnets, fittings, lifting magnets, magnetic clutches, improved drive for planers, type M T controllers and magnetic switches. The bulletins are of a handy size, about 5 x 7 inches, profusely illustrated, and the printed matter is so worded as to convey an intelligent idea of the machines to the average reader.

Dynamotors and Motor Generators.—The Holtzer-Cabot Electric Company, Brookline, Mass., have issued bulletin No. 302, containing 32 pages, displacing No. 130. It is larger and more comprehensive than the old bulletin and contains an appendix, especially relating to various forms of telephone machinery, showing most of the latest apparatus in this line.

NOTES.

The Sturtevant Mill Company, Harrison Square, Boston, Mass., have issued a pamphlet on roll jaw crushers for fine crushing. They claim to grind about 216 times as fine as the common jaw crushers.

The Model Heating Company, Philadelphia, Pa., issue on the first of each month a sheet entitled "Mill and Boiler Shop Practice," and suggest that these be placed in prominent locations where they may be consulted by the workmen. The seventeenth number, appearing June, 1904, discusses "Damper Regulators, Right and Wrong Connections." The descriptive matter is accompanied with diagrams to illustrate the points brought forth.

The F. W. Braun Company, Los Angeles and San Francisco, Cal., are distributing a pamphlet entitled "Annealing, Hardening, Tempering, Case Hardening," which contains useful hints regarding these operations and at the same time tells something of the advantages of Braun's portable forge and tempering furnace.

The Great Lakes Engineering Works, Detroit, Mich., recently issued catalogue E, on Great Lakes compressors. The subject matter gives a complete illustrated description of a vertical compound two-stage compressor having a capacity of 3000 cubic feet per minute.

H. A. Johnson & Co., 226 State street, Boston, Mass., are distributing a mailing card, 7 x 11 inches, showing on one side a cut of the Ordway portable oven and on the reverse side a description of the same.

The Westinghouse Company are distributing a folder which will be of value to those who contemplate visiting the World's Fair. It gives a map of St. Louis and the World's Fair grounds, points of interest to be seen in the city, the principal hotels, restaurants, theatres, &c., an index to the exhibits in general, where to find the Westinghouse exhibits and what they consist of.

So far as the Wire mills are concerned the situation is not brilliant, orders being very scarce, so that soon they will have to be forced to face the question of partial stoppage. Negotiations are continuing for the establishment of a Wire syndicate. There is nothing special to be noted among the Wire Nail mills, while the project of building a Wire Nail mill at Forchies-la-Marche, the Société de l'Esperance at Fontaine l'Éveque, has begun, the completion of which may affect the market. There has been some talk of an understanding between the Belgian Wire syndicate and this outside mill. It is feared, however, that it will not be brought about. The construction shops are well supplied with orders, owing to the important requirements made by the State.—*Belgian Correspondence.*

The Iron and Metal Trades

A general review of the situation throughout the country, in all its leading branches, brings out the fact that there is a somewhat better feeling without anything really tangible to base it on. Yet it does exist, and is reflected in a disposition among sellers to refrain from crowding the market. Buyers are taking material only for immediate requirements, and that policy seems to have been adopted even by the smallest. In those branches in which the markets are open there has been the encouragement of past success through adherence to that course.

Raw materials have been suffering from the stoppage of furnaces. In Ore the lake freight has got down to 70c. to lower lake ports, with Mesaba non-Bessemer selling down to \$2.35 and \$2.40. Coke, too, has weakened, and some large sales for delivery over the next few months have been made at \$1.35 at oven for strictly Connelville Furnace Coke, while Foundry Coke has sold at \$1.75.

Buyers of Pig Iron throughout the country are acting conservatively, and in some cases are not even covering long time contracts for product at once, but take the metal from the market in driplets. A moderate tonnage has been placed in the leading distributing centers, the volume in some cases being rather larger than usual. But the large blocks which have been in the market have not been closed as yet, among them being the lot of 30,000 tons for a Western consolidation of agricultural machinery. The Cincinnati Cast Iron Pipe order, reduced to 14,000 tons, is to be given out at an early date.

Basic and Forge Irons have weakened in the Pittsburgh market, a number of good sized blocks having been placed.

A good deal of interest attaches to the second part of the contract for Castings for the Pennsylvania tunnel in this city, which involves the delivery of 104,000 tons of machined Castings, over a period of four years. This, of course, does not call for any very large tonnage immediately.

What little uneasiness may have existed as to the possibility of labor troubles in the sheet and tin plate trades is now dispelled by the acceptance on the part of the men of the terms of the makers.

Some fair tonnage of Structural Material has been placed in the Pittsburgh market, the Wabash work being a conspicuous part of it. The Plate trade continues exceedingly dull, with some possibility that prices will be revised at the meeting of the association next week. The price of Boiler Tubes has been reduced.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type,
Declines in Italics.

At date, one week, one month and one year previous.

June 29, June 22, June 1, July,
1904. 1904. 1904. 1903.

PIG IRON:

Foundry Pig No. 2, Standard, Philadelphia	\$14.50	\$14.50	\$14.50	\$18.50
Foundry Pig No. 2, Southern, Cincinnati	11.75	11.75	12.00	17.25
Foundry Pig No. 2, Local, Chicago	13.25	13.25	13.50	19.00
Bessemer Pig, Pittsburgh	12.50	12.50	13.35	19.35
Gray Forge, Pittsburgh	12.10	12.15	12.35	18.50
Lake Superior Charcoal, Chicago	14.50	14.50	15.00	24.00

BILLETS, RAILS, &c.:

Steel Billets, Pittsburgh	23.00	23.00	23.00	28.00
Steel Billets, Philadelphia	24.00	24.00	24.00	30.00
Steel Billets, Chicago	24.00	23.00	24.00	29.50
Wire Rods, Pittsburgh	28.50	29.00	30.00	36.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00

OLD MATERIAL:

O. Steel Rails, Chicago	9.50	9.50	11.00	17.00
O. Steel Rails, Philadelphia	11.00	11.25	12.00	21.00
O. Iron Rails, Chicago	14.50	14.50	15.25	20.00
O. Iron Rails, Philadelphia	14.50	14.50	14.00	....
O. Car Wheels, Chicago	10.50	10.50	12.50	21.50
O. Car Wheels, Philadelphia	11.00	11.50	11.00	....
Heavy Steel Scrap, Pittsburgh	11.00	11.00	11.50	20.00
Heavy Steel Scrap, Chicago	9.00	9.00	9.50	16.50

FINISHED IRON AND STEEL:

Refined Iron Bars, Philadelphia	1.48½	1.48½	1.48½	1.75
Common Iron Bars, Chicago	1.30	1.27½	1.35	1.70
Common Iron Bars, Pittsburgh	1.30	1.30	1.35	1.75
Steel Bars, Tidewater	1.49½	1.49½	1.49½	1.75
Steel Bars, Pittsburgh	1.35	1.35	1.35	1.60
Tank Plates, Tidewater	1.74½	1.74½	1.74½	1.78
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.60
Beams, Tidewater	1.74½	1.74½	1.74½	1.73½
Beams, Pittsburgh	1.60	1.60	1.60	1.60
Angles, Tidewater	1.74½	1.74½	1.74½	1.73½
Angles, Pittsburgh	1.60	1.60	1.60	1.60
Skelp, Grooved Steel, Pittsburgh	1.35	1.35	1.40	1.90
Skelp, Sheared Steel, Pittsburgh	1.35	1.35	1.40	2.00
Sheets, No. 27, Pittsburgh	2.00	2.05	2.10	2.65
Barb Wire, f.o.b. Pittsburgh	2.50	2.50	2.50	2.60
Wire Nails, f.o.b. Pittsburgh	1.90	1.90	1.90	2.00
Cut Nails, f.o.b. Pittsburgh	1.75	1.75	1.75	2.15

METALS:

Copper, New York	12.62½	12.62½	13.00	14.50
Spelter, St. Louis	4.70	4.60	4.65	5.50
Lead, New York	4.20	4.20	4.25	4.12½
Lead, St. Louis	4.12½	4.10	4.17½	4.02½
Tin, New York	25.50	25.50	26.80	28.12½
Antimony, Hallett, New York	7.25	7.25	7.00	6.62½
Nickel, New York	40.00	40.00	40.00	40.00
Tin Plate, Domestic, Bessemer, 100 pounds, New York	3.64	3.64	3.64	3.99

Chicago.

FISHER BUILDING, June 29, 1904.—(By Telegraph.)

It almost seems that we have come to the parting of the ways, a critical period in which the patient scarcely breathes, and anxious watchers scarcely know whether to predict a change for the better or the worse. Men of long experience whose judgment is excellent conclude that whatever change takes place from present conditions will be a change for the better. They argue from the standpoint that conditions are now as bad as the can be, and that the wealth of the West, the assurance of a conservative national administration which ever party comes into power, and the promise of excellent crops all augur for better things to come. This feeling is evidently shared by many buyers, for in a good many lines inquiry has been better this week than the week previous, and a larger percentage of the inquiries has developed into orders. The orders are not large, and all the buyers, both large and small, are inclined to limit their purchases to their actual necessities, except where they can secure large time contracts at present low prices. Southern Pig Iron seems to have reached its bottom figure at \$9, Birmingham, for strictly No. 2 fracture grade, though furnaces are shipping Iron that is relatively high in silicon, but too high in phosphorus and sulphur, from lower grades on analysis classifications that might be called No. 2. Northern Iron is inactive with a disinclination on the part of sellers to market their product outside of immediate delivery at present low prices. There is nothing doing in Billets. Standard Section Rails are extremely quiet. A fair activity is evidenced in Rails of light sections and in Track Supplies. Structural Steel is extremely quiet, but with little hope for immediate betterment. Plates are still on the sick list, but apparently convalescent.

Sheets are in slow demand, with little price cutting, because there is not enough demand to call for it. Pipe has lost the activity that has characterized it during the months that preceded June. Boiler Tubes have been reduced in price to meet the competition of present and future producers. Cast Iron Pipe is slow in general demand, the price being hammered down by two or three large prospective contracts. Old Materials show but little change from last week, with speculative buying increasing. Metals are extremely dull, with lower prices prevailing. Wire products are weak, with independent mills scrambling for business at whatever cut is necessary to close desirable contracts.

Pig Iron.—There is practically no change in market conditions from last week, but the feeling is perhaps better. One large Southern producer, who made an open price of \$9, Birmingham, for No. 2 and made an energetic canvass of the market on that basis, reports that practically all their stock of Iron was sold as a result of the week's work, and that hereafter their price will be \$9.25 or higher. There is at least one large producer who refuse consistently to sell at less than \$9.50, and are satisfied to stay out of the market until that price is reached. The quantity of available \$9 Iron is said to be greatly decreased, and it seems to be the sentiment of Southern producers that it is to their advantage to make a decided stand at that basis or thereabouts. Whether they shall be able to maintain the price at \$9, and later on to increase it is problematical, particularly in view of the restoration of the old high freight rate which goes into effect July 1, and the weak tone of the Northern Iron market. Southern No. 4 and Gray Forge, which have been scarce, and have been held at a premium, are now held on the basis of \$8, Birmingham, indicating that the temporary scarcity has been relieved in some quarters at least. There is little to say about Northern Iron, except that a somewhat larger volume is being moved than a week ago. This by no means indicates that business is active, for the contrary is true. The International Harvester Company has indicated to the trade that they would buy something like 30,000 tons of Pig Iron, if prices and deliveries were satisfactory, which is taken by dealers to mean that they are willing to pay \$9 on contract for delivery well into next year, a proposition that has thus far met with nothing but refusal. They have picked up small lots at bargain prices, but there is little to indicate that they are at all in earnest in the large proposition, the feeling being that they are sizing up the market. Their own blast furnaces have sufficient capacity to supply the probable needs of their Steel plant, but they will sooner or later have to buy 30,000 to 40,000 tons for use in their foundries. They have sent a bulletin to the trade, asking prices on 1500 tons of 2½ to 3 per cent. Silicon Iron, for delivery at their plant at Hamilton, Ontario. As far as can be ascertained no large tonnages have been closed during the week under review, and there is, apparently, a deadlock between the sellers and the large buyers on the matter of price and delivery. Furnaces that are perfectly willing to take present prices for delivery within the next 90 days positively decline to name that price for a longer period. We quote as follows for car lots and greater, Chicago:

Lake Superior Charcoal.....	\$14.50 to \$15.50
Northern Coke Foundry, No. 1.....	13.75 to 14.00
Northern Coke Foundry, No. 2.....	13.25 to 13.50
Northern Coke Foundry, No. 3.....	13.00 to 13.25
Northern Scotch, No. 1.....	14.00 to 14.25
Ohio Strong Softeners, No. 1.....	15.05 to 15.30
Ohio Strong Softeners, No. 2.....	14.55 to 14.80
Southern Silvery, according to Silicon.	14.15 to 15.15
Southern Coke, No. 1.....	13.15 to 13.40
Southern Coke, No. 2.....	12.65 to 13.15
Southern Coke, No. 3.....	12.40 to 12.65
Southern Coke, No. 4.....	11.65 to 12.15
Southern Coke, No. 1 Soft.....	13.15 to 13.40
Southern Coke, No. 2 Soft.....	12.65 to 13.15
Southern Gray Forge.....	11.65 to 11.90
Southern Mottled and White.....	11.65 to 11.90
Malleable Bessemer.....	13.75 to 14.00
Standard Bessemer.....	14.80 to 15.05
Jackson County and Kentucky Silvery,	
6 to 10 per cent. Silicon.....	16.30 to 18.30
Alabama Basic.....	to 13.15
Virginia Basic.....	13.85 to 14.10

Billets.—There is little or nothing doing in Billets and pool prices must be considered purely nominal. These prices are unchanged at \$24 per gross ton for Billets 4 x 4 and larger, with \$1 extra for Axle Billets.

Rails and Track Supplies.—The month of June thus far has exceeded in tonnage all the month of May, with three days more to hear from. This is particularly true of Light Rails, although there have been some new orders on Standard Sections and a fair amount of specifications. Track Supplies retain their activity, and the month's record in this line is going to be a good one compared with Rails and other finished products. Standard Sections are unchanged on the \$28 basis, while Light Section Rails range from \$22.50 to \$25 per gross ton. Angle Bars are unchanged at 1.35c. to 1.40c. Spikes are lower, being now quoted at 1.65c. to 1.70c. in car lots from mill and as high as 1.85c. in small lots from store. Track Bolts are selling at 2.20c. to 2.25c., base, from mill, with Square Nuts, and 10c. to 15c. extra for Hexagon Nuts, with an advance of about 15c. for shipment from store.

Structural Material.—No contracts of magnitude seem to have been placed this week in this market. Business is practically dead and prices nominally unchanged, though there are independent producers of certain sizes of Angles and other Sections who are shading the association prices \$1 to \$2 per ton. Hard Steel Angles and Bars, which are growing in demand, particularly among builders of cement structures, are sold at about 1.25c., Chicago. Association prices on Structural sizes are as follows: I-Beams and Channels up to and including 15 inches and Angles 3 inches on one leg and larger, 1.76½c., Chicago; Tees, \$1 per ton extra. Store prices on Structural are as follows: Angles, Beams, Channels and Zees, base sizes, 2c. to 2.10c.; Tees, 2.05c. to 2.15c., either random lengths or cut to lengths 5 feet and over.

Sheets.—No change can be noted in Sheet prices and business is extremely dull, both from mill and store. It is true that mills have not been actively soliciting business for immediate delivery, owing to the fact that the majority of them intend closing down July 1 for whatever period the labor and commercial situation calls. We quote: One Pass Cold Rolled Blue Annealed, Nos. 9 and 10, 1.76½c.; Nos. 11 and 12, 1.86½c.; Nos. 13 and 14, 1.91½c.; Nos. 15 and 16, 2.01½c. On One Pass Cold Rolled Box Annealed Sheets, 18 gauge and lighter, the following prices seem to prevail: Nos. 18 and 20, 2.06½c. to 2.11½c.; Nos. 22 and 24, 2.11½c. to 2.16½c.; No. 26, 2.16½c. to 2.21½c.; No. 27, 2.21½c. to 2.26½c.; No. 28, 2.31½c. to 2.36½c.; No. 29, 2.46½c. to 2.51½c.; No. 30, 2.56½c. to 2.61½c. Store prices on Sheets are as follows: No. 10 and heavier, 2c. to 2.10c.; No. 12, 2.05c. to 2.15c.; No. 14, 2.10c. to 2.20c.; No. 16, 2.20c. to 2.30c.; No. 18, 2.30c. to 2.40c.; No. 20, 2.30c. to 2.40c.; No. 22, 2.35c. to 2.45c.; No. 24, 2.40c. to 2.50c.; No. 26, 2.50c. to 2.60c.; No. 27, 2.60c. to 2.70c.; No. 28, 2.70c. to 2.80c.; No. 29, 2.85c. to 2.95c. Galvanized Sheets are extremely weak, the ruling discounts being 80 and 5 to 80 and 10, Pittsburgh, for carload shipments from mill, and 75, 10 and 5 to 80 per cent. discount for smaller lots from store, Chicago.

Plates.—This has been a quiet week in the Plate market, with a disposition on the part of buyers to postpone buying to the last moment in the hope of being able to disrupt the Plate Association. It is not considered that they will be successful in this purpose, though something may be done by the Plate pool to bring to reckoning the producers of narrow Plates who are cutting prices. Several independent mills are selling Plates, 60 inches wide and narrower, at \$2 or more below the association price, and Universal Mill Plates are sold by several producers at 1.35c., Pittsburgh, no extra, which places them on the Bar scale rather than on the Plate scale. Association prices are as follows: Tank Steel, ¾-inch and heavier, 1.76½c.; Flange Steel, 1.86½c.; Marine, 1.96½c.; Universal Mill Plate, 1.76½c. to 1.81½c.; 3-16 inch Tank, 1.86½c.; Nos. 7 and 8, 1.96½c. to 2.01½c. Lighter than No. 8, prices have been reduced sharply. No. 10 and lighter, which are not governed by the Plate Association schedule, are sold at whatever price will take the order, No. 10 being offered at about 1.76½c.; Nos. 11 and 12, 1.86½c. Store prices on all gauges from No. 10 to the heaviest is 2c. to 2.10c. f.o.b. warehouse, with the usual extras for wide widths and special qualities.

Bars.—There are indications that mills that were willing to take very low prices on Iron Bars last week have either secured sufficient tonnage to keep them running or have decided that there is no money at such prices and are holding to better figures; 1.30c., base, half extras, for Iron Bars in carload lots, Chicago, is looked upon as the lowest price obtainable, and that price will only be named on orders that are exceptionally desirable either because of their magnitude or their sizes; 1.35c. is demanded by a number of producers, and there is some Iron going at midway between these prices. Steel Bars are unchanged at 1.35c., base, half extras, Pittsburgh, or 1.51½c., Chicago, by the association, with two or three independents naming lower prices on such sizes as they make. Hoops are unchanged at 1.55c. rates, Pittsburgh, full extras, which makes them 1.71½c., Chicago. Store prices are as follows: Iron Bars, 1.75c., base, full extras; Steel Bars, 1.70c. to 1.80c., base, half extras; Hoops, 2.10c. rates, full extras.

Merchant Steel.—Chicago machine shops are gradually increasing their complement of nonunion men to take the place of strikers, and are in a position to-day when they can fairly well take care of their orders. This leads to some business in delayed orders on Tool Steel and other machine shop requirements. Crop reports are favorable, and indications are that implement manufacturers will be large buyers in the second half of the year, though they show a disinclination to tie themselves up with contracts unless prices are fully crystallized. Prices are unchanged, nominally at least, as follows: Open Hearth Spring Steel to the general trade, 2c. to 2.25c.; Smooth Finished Machinery Steel, 1.76½c. to 1.81½c.; Smooth Finished Tire, 1.71½c. to 1.76½c.; Sleigh Shoe, flat, 1.56½c. to 1.61½c.; Sleigh Shoe, concave and convex, 1.66½c. to 1.71½c.; Cutter Shoe, 2.25c. to 2.35c.; Toe Calk Steel, 2.06½c. to 2.11½c.; Crucible Tool Steel, 6½c. to

Sc.; special grades of Tool Steel, 13c. and up; Shafting at 52 per cent. in car lots and 47 per cent. in less than car lots.

Merchant Pipe.—While Pipe is usually quiet at this time of the year, it is more stagnant than ordinarily just now. This condition is not unwelcome to many mills which have been running under high pressure during the last six months and are willing to slack up for the purposes of their summer house cleaning. The official prices quoted below are being held fairly well, with independent mills cutting just enough below these prices to secure the business they require. Official discounts are as follows:

	Steel Pipe.		Guar. W'ght Iron.	
	Black.	Galv.	Black.	Galv.
1/2 to 3/4 inch	67.35	57.35	64.35	54.35
1/2 inch	70.35	60.35	67.35	57.35
3/4 to 6 inches	74.35	64.35	71.35	61.35
7 to 12 inches	69.35	59.35	66.35	56.35

Boiler Tubes.—The fierce competition on the Boiler Tube proposition from independent mills making Charcoal Iron Tubes, as well as some competition on Steel Tubes, has led to a reduction of prices amounting to 2 to 2 1/2 points increase in discounts on Steel and about 3 points on Iron. Seamless Steel Tubes at this writing do not seem to have been changed, although a new list of discounts is not unexpected. The new prices are as follows, in carload lots, Chicago, with the understanding that large boiler makers and jobbers can secure better figures:

	Steel.	Iron.
1 to 1 1/2 inches	46.35	41.35
1 1/2 to 2 1/2 inches	58.35	41.35
2 1/2 inches	60.35	46.35
2 1/2 to 5 inches	66.35	53.35
6 to 13 inches	58.35	41.35

Notwithstanding the reduction in prices from mill the jobbers have not yet reduced their prices from store, which are unchanged, as follows:

	Steel.	Iron.	Seamless steel.
1 to 1 1/2 inches	40	35	37 1/2
1 1/2 to 2 1/2 inches	50	32 1/2	35
2 1/2 to 5 inches	60	45	45
6 inches and larger	50	32 1/2	..

Cast Iron Pipe.—Little business has been placed, although there are some nice contracts being figured on. Two thousand tons of Water Pipe were sold by the leading producer to the city of Los Angeles. The letting at Cincinnati, which was contested and finally readvertised, is up again for decision July 1. It aggregates 14,000 tons. Erie, Pa., is in the market for 4000 tons, and the city of Winnipeg, Manitoba, has asked prices on about 500 tons. Prices are unchanged for small lots, as follows: \$25.50 the maximum for 4-inch Water Pipe and \$24.50 for 6-inch and heavier, and \$1 extra for Gas Pipe. Better prices than these will be named on lots of several hundred tons and above.

Old Material.—Prices have gone so low that it is understood that the Illinois Central and other roads have decided to offer no more Scrap until there shall be a better market. The Chicago, Burlington & Quincy, the Rock Island and Union Pacific disposed of practically all the tonnage included in the schedules published last week, but the prices were far from satisfactory. That the market has reached a point at or near the bottom is indicated by the fact that the dealers all over the country are buying and storing materials for speculative purposes. They figure that while it costs them but little to carry these materials for six months, there is every probability that at least 20 per cent. may be added to the present prices before the first of next year. We might repeat last week's quotations without change and still be in line with the market, but for the sake of accuracy we make a few changes based on actual transactions of considerable moment. These changes include a reduction of \$1 on inspected relayers, and an advance of 50c. on No. 2 Railroad Wrought and Cast and Mixed Borings, with a reduction of 50c. on Cut Boilers. We quote as follows, per gross ton, Chicago, carload lots:

Old Iron Rails	\$14.50 to \$15.00
Old Steel Rails, 4 feet and over	10.50 to 11.00
Old Steel Rails, less than 4 feet	9.50 to 10.00
Heavy Relaying Rails, subject to inspection	21.00 to 22.00
Heavy Relaying Rails, for side tracks	18.00 to 20.00
Old Car Wheels	10.50 to 11.00
Heavy Melting Steel Scrap	9.00 to 9.50
Mixed Steel	8.00 to 8.50

The following quotations are per net ton:

Iron Fish Plates	\$12.00 to \$12.50
Iron Car Axles	15.00 to 15.50
Steel Car Axles	13.50 to 14.00
No. 1 Railroad Wrought	10.50 to 11.00
No. 2 Railroad Wrought	9.50 to 10.00
Shafting	12.50 to 13.00
No. 1 Dealers' Forge	8.00 to 8.50
Wrought Pipe and Flues	7.00 to 7.25
Iron Axle Turnings	7.00 to 7.25
Soft Steel Axle Turnings	7.00 to 7.25
Machine Shop Turnings	6.25 to 6.75
Cast Borings	3.50 to 4.00
Mixed Borings, &c.	3.50 to 4.00
No. 1 Mill	6.00 to 6.50
Country Sheet	5.00 to 5.50
No. 1 Boilers, cut to Sheets and Rings	7.00 to 7.50
Heavy Cast Scrap	8.75 to 9.25
Stove Plate and Light Cast Scrap	7.50 to 8.00
Railroad Malleable	8.25 to 8.75
Agricultural Malleable	7.75 to 8.00

Metals.—This market is exceedingly dull. Copper is unchanged in price, Casting being held at 12 1/4c. and Lake at 13c. Pig Tin has declined 1/4c. and is now quoted at 26 3/4c. to 27c. Pig Lead is without change at 4.20c. for 50-ton lots, 4.30c. for car lots and 4.50c. for less than car lots. Spelter has been reduced 0.05c. and is sold at 4.85c. to 4.95c. for car lots and 5.10c. to 5.25c. for small lots. Sheet Zinc is unchanged at 5.90c. for car lots of 600-lb. casks and 6.15c. to 6.20c. for less than car lots. Old Metals are unchanged in price, as follows: Copper Wire and Heavy, 10 1/4c. to 10 1/2c.; Copper Bottoms, 9 1/4c.; Copper Clips, 10 1/2c.; Red Brass, 9 1/2c.; Red Brass Borings, 7 1/4c.; Yellow Brass, Heavy, 7 1/2c.; Yellow Brass Borings, 6c.; Light Brass, 5 1/2c.; Tea Lead, 3 1/2c.; Zinc, 3.75c.; Pewter, No. 1, 16 1/4c.; Block Tin Pipe, 21c.

Coke.—The Connellsville producers seem to be endeavoring to hold their Coke for future delivery at \$2 per ton for 72-hour Foundry and about \$1.50 for Furnace quality, though contracts for future delivery are being taken as low as \$1.90 and sales for spot delivery at \$1.75. Freight on Connellsville Coke to Chicago is \$2.65 per ton. The Stonega and other Wise County, Va., Cokes are being held at \$1.90 to \$2 at the ovens, which gives them an advantage over Connellsville and other districts because of the \$2.25 freight rate to Chicago. This freight rate was originally made by the L. & N. for the purpose of permitting the ovens along the line to secure the business of the furnaces at South Chicago, and it was not originally intended that it should apply to single car lot shipments to miscellaneous foundries. But the extension of the rate to the foundry trade has resulted in moving a very large tonnage of Foundry Coke from that district to Chicago, and has played no small part in the demoralization of the foundry trade here. Very little demurrage Coke is left on track and the trade is beginning to settle down to a normal basis again.

Philadelphia.

FORREST BUILDING, June 28, 1904.

Without any particular change in the general situation there has been a somewhat better demand for Pig Iron, and a few good sized orders taken, although at slightly lower figures. Business is extremely dull, however, with very little prospect for improvement in the near future. The inertia is not confined to any particular line, but there has been a gradual and uniform falling off in the demand for Iron from all sources, the single exception being Cast Iron Pipe, and even for that the demand is not as good as was expected. Prices are weak, but they have not declined very much, and that is about the best that can be said in regard to it. The question of prices has very little bearing on the situation, however. Buyers would be quite willing to pay quoted rates if they had use for the material, but as there is barely half the demand there was a year ago, Pig Iron requirements are in proportion. There is some talk of a better demand for cars, and in one or two other lines there is more inquiry, but the outcome is not likely to change the general situation, although it may give a little help through the dull period of July and August. There is not much talk about labor, but the emergencies of the situation will be likely to call for further reductions. It is not a matter of choice but of necessity, but it will be a natural development in accordance with the law of supply and demand. The Pennsylvania Railway Company and other large organizations are meeting the emergency by giving enforced furloughs varying from two to three months. This relieves the pay rolls of a large percentage, while the work must be done by the smaller force just the same as if they were full handed. It is an ingenious way of getting around a difficult situation, but it is perfectly fair, as the distribution of wages is equalized among the same number of hands, as they all have to take their turns. Practically, however, it cuts down the expenses of operating anywhere from 15 to 20 per cent. during the continuance of the furloughs, which can be lengthened or shortened according to the conditions which may arise from time to time.

Pig Iron.—There has been more business during the past week and there are still several inquiries for good sized quantities. The movement is not regarded as of any significance, however, but after so long a period of dullness somebody must surely need Iron. Production goes on regularly whether buying does or not, so that there must be considerable buying after long spells of dullness otherwise the accumulations would become overwhelming. It is not unlikely, therefore, that there may be a fairly active market for a brief period, although there is nothing to indicate the slightest change in the underlying conditions. Prices are gradually easing off; it cannot be said that there is any marked weakness, although there can be little doubt that the tendency is toward a lower range, but how far it will extend it is impossible to say. There is a gradual curtailment in output, but unless the demand improves the restriction must be more radical than it has been so far, otherwise prices will begin to go more rapidly than Pig Iron makers seem to expect. Their expressed intention is to stop making Iron when market prices get below cost of

production, and as this is already the case with some furnaces there should be a heavy curtailment during the next three months, if not for a still longer period. If furnace owners back up their assertions as regards production prices may not go much lower, but it all depends on production. There is no faith in an increased consumption—rather the reverse—so that there is only one way to save the market, and that is on the lines indicated. The demand during the past and the next few days will probably cover the more urgent requirements; after that another period of inactivity may be expected, which will continue until the question of supply and demand can be estimated with more certainty than it can be at present. Meanwhile a slightly lower range of prices may be quoted, which for the present are about as follows for city and nearby deliveries:

No. 1 X Foundry.....	\$15.00 to \$15.25
No. 2 X Foundry.....	14.50 to 14.75
No. 2 Plain.....	13.75 to 14.00
Alabama No. 2, rail shipment.....	13.50 to 13.75
Alabama No. 2 on dock.....	12.50 to 12.75
Standard Gray Forge.....	13.25 to 13.50
Ordinary Gray Forge.....	12.75 to 13.00
Basic.....	13.15 to 13.35

Steel.—The demand for Steel has fallen off considerably, although small lots seem to be wanted quite frequently and are taken at full prices. There is a disposition to postpone the placing of large orders, however, and it is not expected that there will be much business until well on in July. Price about \$24 for prompt deliveries.

Plates.—There is little to be said in regard to the Plate trade, except that it is dull and gives no indication of improvement in the near future. It cannot be said that it is any worse than it has been during the past few weeks, but it is no better, with very little prospect of change either way until after the midsummer holidays. The general business situation is not particularly bad, but there is a disposition to postpone new operations until there are further developments in regard to the crop situation, the Presidential election and other influences, which may give a definiteness to the situation which is not felt at the present time. Prices are unchanged, as follows:

	Carloads.	Part carloads.
	Cents.	Cents.
Tank Steel, ¼-inch and heavier.....	1.73½	1.78½
Tank Steel, 3-16-inch.....	1.83½	1.88½
Tank Steel, Nos. 7 and 8, B. W. G.....	1.88½	1.93½
Tank Steel, Nos. 9 and 10, B. W. G.....	1.98½	2.03½
Flange or Boiler Steel.....	1.83½	1.88½
Commercial Fire Box Steel.....	1.93½	1.98½
Still Bottom Steel.....	2.03½	2.08½
Locomotive Fire Box Steel.....	2.23½	2.28½
Plates over 100 to 110 inches.....	.05 per lb. extra	
Plates over 110 to 115 inches.....	.10	
Plates over 115 to 120 inches.....	.15	
Plates over 120 to 125 inches.....	.25	
Plates over 125 to 130 inches.....	.50	
Plates over 130 inches.....	1.00	
All sketches (excepting straight taper plates varying not more than 4 inches in width at ends, narrowest end being not less than 30 inches).....	.10	
Complete Circles.....	.20	
Shell grade of Steel abandoned.		

Structural Material.—The general situation is unchanged and is expected to continue so for some time to come. Mills have some old orders to work on, and a certain amount of new business comes in week by week, but nothing that is likely to change the prevailing conditions. Prices unchanged as follows—viz.: Beams, Channels and Angles, 1.73½c. to 1.85c., according to specifications, and small Angles, 1.50c. to 1.55c.

Bars.—Business is extremely dull, but is not more so than ought to be expected considering the season and the general situation. Consumption has fallen to small proportions, and it is not expected to show much increase until later in the season. Stocks are light, however, so that renewal orders are likely to be frequent, even if they are not large. Prices are maintained at 1.48½c. as a minimum for both Iron and Steel Bars, and 1.52½c. or over for the best makes.

Sheets.—A good demand is reported, mills running full to meet the requirement for prompt shipments. This, however, is not likely to continue during the next two or three weeks, as a general suspension of work will be made during the early portion of July. The demand for Iron Sheets has been particularly good during the past two or three weeks and has attracted some attention, although it may be only a temporary condition.

Old Material.—There is no improvement in the demand for Scrap Material and prices are still weak, and in most cases a shade lower. There is little or no demand, so that when removal has to be made it is necessary to accept extremely low prices to secure a buyer. Sales are made at about the prices quoted below, bids and offers for deliveries in buyers' yards being about as follows:

No. 1 Steel Scrap.....	\$11.00 to \$11.50
Low Phosphorus Scrap.....	15.00 to 16.00
Old Steel Axles.....	15.00 to 16.00
Old Iron Rails.....	14.50 to 15.00
Old Iron Axles.....	15.00 to 17.00
Old Car Wheels.....	11.00 to 11.50
Choice Scrap, R. R. No. 1 Wrought.....	12.50 to 13.00
Machinery Scrap.....	11.00 to 12.00

No. 2 Forge Fire Scrap.....	9.50 to 10.00
No. 2 Forge Fire Scrap (Ordinary).....	8.00 to 8.50
Wrought Turnings.....	8.00 to 8.50
Axle Turnings, Choice Heavy.....	9.00 to 9.50
Cast Borings.....	6.25 to 6.50
Stove Plate.....	9.00 to 9.50
Wrought Iron Pipe.....	9.50 to 10.50

Cleveland.

CLEVELAND, OHIO, June 28, 1904.

Iron Ore.—The tide turned against the vessel owners when it came to fixing season rates for the transportation of Iron Ore. Charters heretofore placed were to be subject to the rates when made. A few wild cargoes had been placed at flat rates of 70c. from the head of the lakes to Lake Erie ports and 55c. from Escanaba. The shippers had offered those same rates on season contracts, promising to cover a liberal quantity of Ore regardless of the lack of any heavy sales upon which to base such contracts. The vessel owners held a meeting and decided to accept nothing less than a base of 80c. from the head of the lakes. The agreement was but a gentleman's understanding, and upon the appearance of a good block of Ore by Corrigan, McKinney & Co. the agreement was broken and the vesselmen hastened to cover. A reduction of 15c. a ton on the carrying rates for the season was thus effected, last year's rates having been on the basis of 85c. from the head of the lakes. Something over 1,000,000 tons of Ore are said to have been covered on the rates named, and it is considered that this will fix the rates for the season. The sales of Ore have been limited. The statement of one Ore producer is characteristic. He says that the sales agents of Cleveland, all told, have not sold as much Ore as any one of them a year ago. The ensuing three months are to be dull, and possibly the whole second half. The base prices for Bessemer have not been changed, \$3.25 for Old Range and \$3 for the Mesabas. The Non-Bessemer Ores have been cut. Old Range is sold at \$2.60 to \$2.65, f.o.b. Lake Erie ports, and the Mesabas at \$2.40 to \$2.45. One new Ore is reported to have sold at \$2.25, but this competition is not regarded by the other producers.

Pig Iron.—Conditions have not changed materially from what they were a week ago. A few inquiries are made now and then, but they lack steam. For the most part, the furnace owners are reconciled to the coming months of dullness, and rather than produce Iron at the present cost are willing to blow out their stacks. Some of the furnace owners and many of the foundrymen are now preparing to make their Coke contracts for the second half, if not further ahead. The present low price is tempting some to make contracts for the year. The market is active now at \$2 to \$2.10 for good 72-hour Foundry Coke and \$1.50 to \$1.60 at the oven for good Furnace Coke. We quote Pig Iron prices, f.o.b. Cleveland, as follows:

Northern Coke, No. 1 Foundry.....	\$13.50 to \$13.75
Northern Coke, No. 2 Foundry.....	13.00 to 13.25
Northern Coke, No. 3 Foundry.....	12.50 to 12.75
Southern Coke, No. 1 Foundry.....	13.35 to 13.60
Southern Coke, No. 2 Foundry.....	12.85 to 13.10
Southern Coke, No. 1 Soft.....	13.35 to 13.60
Southern Coke, No. 2 Soft.....	12.85 to 13.10
Jackson County, 8 per cent. Silicon.....	16.45
Hanging Rock Charcoal, No. 1.....	23.45
Southern Charcoal, No. 1.....	17.85
Lake Superior Charcoal.....	15.50 to 16.00

Finished Iron and Steel.—Generally it might be said of the trade that there is a much stronger undercurrent with a more hopeful feeling. It is accepted now that there are to be a few months of slow business, but the assumption is that the worst has come. While there will be no general reduction in prices, there is more latitude being given sales agents in meeting the competition, which is presenting itself when small mills get hungry for business. The contract has been let for the material for the new Guardian Trust Company building. This adds 400 tons to the current Structural Steel trade. The buying of Plates has been increased to a certain extent, but as yet there is nothing like such buying, as appeared this time a year ago. The Bar situation is a little stronger. Some of the buyers of Bar Iron anticipating the closing of the mills have come in to buy rather freely, and this has caused a decision on the part of some few of the Bar mills to hold over a week or ten days longer. The market has turned a little stronger for Steel Bars, but there is no contracting as yet. Sheets have weakened under the pressure of the smaller mills. The base quotations are 2.50c. for No. 27 Black Sheets out of stock and 2.10c. for No. 27 in car lots at the mill. There has been talk of a cut in Bessemer Billets to \$19, Cleveland. The best price known to have been made by the independents is \$22.50, Cleveland. The amount of business is small. Practically, nothing is being done in either the Standard or Light Rail trades.

Old Material.—The market has been very dull. What little has been done has been of a speculative nature largely. This does not give any definite tone to prices, there being a considerable difference between the prices asked by the collectors and those offered by the dealers. Most quotations are nominal. We revise and quote as approximately the market—all gross tons: Old Steel Rails, \$12; Old Car

Wheels (nominal), \$11 to \$12; Heavy Melting Steel, \$11. All net tons: Cast Borings, \$4 to \$4.50; No. 1 Busheling, \$10 to \$10.50; No. 1 Railroad Wrought, \$11.50 to \$12; Wrought Turnings, \$6.50 to \$7; Iron Car Axles (nominal), \$16 to \$17; No. 1 Cast, \$10.50 to \$11; Stove Plate, \$7 to \$7.50.

Cincinnati.

FIFTH AND MAIN STS., June 29, 1904.—(By Telegraph.)

Pig Iron.—Considerable inquiry has developed during the week just ending, and the prospective business is not only larger than during any week since the middle of March, but is being followed up by actual purchases indicating a growing disposition on the part of the trade to place business at least for early requirements. Buyers, as a rule, would prefer covering to the end of the year, but producers show little disposition to sell beyond the end of September, although we understand some contracts are being made extending throughout the year. In a general way it looks as if the market was in a better condition than at any time during the last two months. While prices are low and unsatisfactory, inquiry and actual business are much more substantial. There is some improvement to be noted in the demand for Foundry and Mill productions. The indications are that the market should experience a gradual but steady improvement from this time forward. Further curtailment in production seems inevitable, as Northern furnaces continue to blow out from time to time, and if a conflict between the producers and labor unions in the South should occur by July 1, as is feared, a number of the furnaces in the South will probably be forced to bank. For these reasons it looks as though stocks in Iron will materially decline by August 1. Southern prices appear to be well maintained, and the figure generally conceded is \$9, Birmingham, for No. 2. It is understood that the United States Cast Iron Pipe & Foundry Company purchased some odds and ends to the extent of about 5000 tons at a shade lower than this, but taking the various grades into consideration, this was not really representative of the market. It is said that in the Pittsburgh district little or no confidence is felt in the market, and the report is that Northern No. 2 Foundry sold during the week as low as \$11.75, Valley furnace, and that this grade is now practically on the same basis as Northern Gray Forge. The American Radiator Company secured 5000 tons on analysis basis equivalent to Alabama Nos. 3 and 4 Foundry at \$9, Birmingham. A Cast Iron Pipe concern at Newcomerstown, Ohio, bought 5000 tons of Southern No. 4 Foundry at \$8.25. The National Tube Company, who have recently been in the market for a round lot of Iron, purchased 2000 tons of Gray Forge at \$8, Birmingham, and we learn that the balance of the inquiry has been withdrawn. Freight rates from Hanging Rock district to Cincinnati, \$1.15, and from Birmingham \$2.75. We quote, f.o.b. Cincinnati, as follows:

Southern Coke, No. 1.....	\$12.25 to \$12.50
Southern Coke, No. 2.....	11.75 to 12.00
Southern Coke, No. 3.....	11.25 to 11.50
Southern Coke, No. 4.....	11.00 to 11.25
Southern Coke, No. 1 Soft.....	12.25 to 12.50
Southern Coke, No. 2 Soft.....	11.75 to 12.00
Southern Coke, Gray Forge.....	10.75 to 11.00
Southern Coke, Mottled.....	10.50 to 10.75
Ohio Silvery, No. 1.....	15.65 to 16.15
Lake Superior Coke, No. 1.....	13.15 to 13.65
Lake Superior Coke, No. 2.....	12.65 to 13.15
Lake Superior Coke, No. 3.....	12.15 to 12.65

Car Wheel and Malleable Irons.

Standard Southern Car Wheel.....	\$16.25 to \$16.75
Lake Superior Car Wheel and Malleable	15.80 to 16.30

Coke.—The Coke market is in a state of demoralization, and shows no signs of improvement. First-class brands of Virginia and West Virginia Foundry Coke we learn have been sold as low as \$1.50, at oven, during the week, while the prevailing quotations on Connellsville Coke range from \$1.75 to \$2, at oven, for 72-hour. Foundry Coke from all districts is much weaker and in very light demand.

Plates and Bars.—The Bar market is showing very little activity, while Structural Iron is in much better demand. Inquiry during the past week for this latter class has shown quite a decided change for the better. Prices remain unchanged. We quote, f.o.b. Cincinnati, as follows: Iron Bars, in carload lots, 1.40c., with half extras; the same in smaller lots, 1.70c., with full extras; Steel Bars, in carload lots, 1.48c., with half extras; the same in smaller lots, 1.80c., with full extras; Base Angles 1.73c., in carload lots; Beams and Channels in carload lots, 1.73c.; Plates, ¼-inch and heavier, 1.73c., in carload lots; in smaller lots, \$2c.; Sheets, 16-gauge, in carload lots, 2.05c.; in smaller lots, 2.60c.; 14-gauge, in carload lots, 1.95c.; in smaller lots, 2.50c.; Steel Tire, ¾ x 3-16 and heavier, 1.68c., in carload lots.

Old Material.—Dealers are still anxiously looking forward to the time when they can dispose of their accumulations. Trade is exceedingly quiet and there is nothing new in sight. We quote dealers' prices, f.o.b. Cincinnati, as follows: No. 1 Railroad Wrought Scrap, \$11 to \$11.50 per net ton; No. 1 Cast Scrap \$9.25 per net ton; Iron Rails, \$14.50 per gross ton; Steel Rails rolling mill lengths, \$11 to \$11.50

per gross ton; Iron Axles \$15 per net ton; Car Wheels, \$11 to \$11.50 per gross ton; Heavy Melting Scrap \$11.50 per gross ton; Low Phosphorus Scrap, \$11.50 to \$12 per gross ton.

Pittsburgh.

PARK BUILDING, June 29, 1904.—(By Telegraph.)

Pig Iron.—Perhaps the least said about the Pig Iron market the better. Any sales of Pig Iron that are being made are at prices that are certainly below cost of production at the furnaces. Many furnace owners are not trying to sell their Iron, but are getting ready to blow out until the market improves. Bessemer and Basic Iron are being freely offered at \$11.65, Valley, or \$12.50, Pittsburgh, and sales of about 2000 tons or more of Basic Iron have been made at \$11.40, Valley, or \$12.25, Pittsburgh. Northern No. 2 Foundry is offered at \$11.75, Valley, or \$12.50, Pittsburgh, but on any considerable tonnage and for July and August shipment this price would be shaded. Northern Forge has sold at \$12.10 to \$12.15, Pittsburgh, and two sales aggregating about 1200 tons are reported at about \$12, Pittsburgh. No Southern Iron is coming into the Pittsburgh district, as it cannot compete with the low prices ruling for Northern Iron.

Steel.—Practically no Billets or Sheet Bars are being sold, consumers holding off buying until it is known what will be done at the Billet meeting to be held in New York next week. It is the general impression that prices of Billets, Sheets and Tin Bars will be reduced, but, on the other hand, any reduction in prices will be opposed by some mills, who will argue that it will not help the situation a particle to reduce prices. Large consumers of Billets who have sliding scale contracts are getting their Steel at figures very much below official prices, which have been merely nominal for some time.

(By Mail.)

The action to be taken next week at the meetings of the Rail, Billet, Plate and Beam Associations, to be held in New York on July 7 and 8, is awaited with very much interest. In the case of Rails it is believed there will be no change in the price of \$28, but in regard to Billets it is intimated that these may be reduced from the present price of \$23 to about \$19 a ton. If this is done it is practically certain that there will be a reduction also in prices of Plates and Beams, which are 1.60c., Pittsburgh. While it is realized that to reduce prices on these products would not stimulate demand, yet at the same time these associations have always been conservative and have been disposed to meet existing conditions. With the price of Bessemer and Basic Iron down to about \$12.50 or lower, Pittsburgh, there is a spread between Pig Iron and Billets of fully \$11.50 a ton, and this can hardly be maintained. None of the concerns that will be represented at the meetings have intimated in any way what will be done, but the trade is expecting a reduction in price of Billets and in Plates and Structural Steel as well.

General conditions in the Iron trade continue very quiet and daily press reports of an improved demand for Iron and Steel do not seem to be borne out. Aside from several small sales of Basic and Foundry Iron there is very little doing in the Pig Iron market, some of the blast furnaces absolutely refusing to meet existing low prices. It will probably be the policy of the large interests to restrict production very materially after July 1, and on that date quite a number of mills will close down to make needed repairs during the dull season. The Shoenberger plant of the American Steel & Wire Company, embracing two blast furnaces, Bessemer and Open Hearth plant, Rod and Plate mill, is shut down tight in all departments. The Carnegie Steel Company have taken out another blast furnace at Bessemer, making two idle stacks at this plant. Struthers Furnace and Mary of the Ohio Iron & Steel Company will blow out early in July, and McKeefrey Furnace, at Leetonia, will also go out. It is probable that additional furnaces in the Pittsburgh and Valley districts will blow out next month. Reports that the New Castle and Mingo Junction Steel plants of the Carnegie Steel Company have shut down for an indefinite period are officially denied, as both these plants are in full operation. The North Sharon works and the Columbus works of the Carnegie Steel Company are idle, but the two blast furnaces at the latter place are running. A number of leading Wire and Wire Nail plants will close early in July to make needed repairs, and also on account of dull business.

Prices of Pig Iron are low, two sales of Basic being reported on the basis of \$11.40, Valley, or \$12.25, Pittsburgh. Standard Bessemer Iron is held at about \$11.65, Valley, or \$12.50, Pittsburgh, but on a firm offer and for July, August and September delivery this price might be shaded. Northern Forge Iron is held at \$12.10 to \$12.15, Pittsburgh. There has been no material change in prices of Finished Iron and Steel, but the market, on the whole, is weak.

Ferromanganese.—In the absence of any sale we quote English and domestic Ferro at \$41.50 to \$42, Pittsburgh.

Very low prices continue to be made on English Ferro for delivery at seaboard points.

Muck Bar.—The market is practically lifeless and we quote best grades of Muck Bar at \$24, Pittsburgh. No sales have been reported in this market for some time.

Wire Rods.—There have been some sales of Wire Rods at relatively low prices for Western delivery. The local market is very quiet and we quote Bessemer and Open Hearth Rods at \$28.50, Pittsburgh, but if any business were offering it is probable a lower price would be made.

Skelp.—There is very little demand for Skelp, but the mills are pretty well filled up on old contracts. We quote Grooved Iron Skelp at 1.42½c. to 1.45c.; Sheared, 1.47½c. to 1.50c., and Grooved and Sheared Steel Skelp at 1.35c., Pittsburgh.

Steel Rails.—There are reports that 30,000 to 40,000 tons of Rails made up of several contracts have been placed since our last report. We quote at \$28 at mill for Standard Sections, the mills equalizing freights. Light Rails continue low in price, and are held at \$21 to \$24.50, depending on weight. It is not believed there will be any change in price of Rails at the meeting to be held next week. It is too late for the roads to do much now, even if the price were lowered.

Structural Material.—Some good sized jobs are in the market, and during the week the Wabash extension was placed with the American Bridge Company. A large office building at Columbus is to be placed this week, and the Duquesne Way tonnage for the elevated tracks of the Pennsylvania Railroad will be given out before long. It is very evident that a good many large contracts will go over until next year. We quote: Beams and Channels, up to 15-inch, 1.60c.; over 15-inch, 1.70c.; Angles, 3 x 2 up to 6 x 6, 1.60c.; Zees, 1.60c.; Tees, 1.60c.; Steel Bars, 1.60c., half extras, at mill; Universal and Sheared Plates, 1.60c.

Plates.—The situation continues very dull, and one of the leading Plate mills has closed down for lack of orders. Opinion is divided as to whether a reduction in price of Plates at the meeting next week would help the market. It would certainly not increase tonnage, and might have the effect of causing buyers to hold off still further. A good deal of tonnage in Plates is being held back, and some of this is bound to come out sooner or later, whether there is any change in prices made or not. There is still a good deal of talk of concessions in prices of Plates, but these are probably made mostly on the narrow sizes and by mills not in the association. We quote: Tank Plate, ¼-inch thick and up to 100 inches in width, 1.60c., at mill, Pittsburgh; Flange and Boiler Steel, 1.70c.; Marine, A. B., M. A., and ordinary Fire Box, 1.80c.; Still Bottom, 1.90c.; Locomotive Fire Box, not less than 2.10c., and up to 3c.; Plates over 100 inches to 110 inches in width, not less than 5c. per 100 lbs. extra; Plates over 110 inches to 115 inches wide, not less than 10c. extra; Plates over 120 inches to 125 inches wide, not less than 25c. extra; Plates over 125 inches to 130 inches wide, not less than 50c. extra; Plates over 130 inches wide, not less than \$1 extra; Plates 3-16 inch in thickness, \$2 extra; gauges Nos. 7 and 8, \$3 extra; No. 9, \$5 extra. Above prices are on carload lots, f.o.b. at mill, Pittsburgh, with 5c. extra for less than carload lots; terms, net cash in 30 days, and for all points of delivery in the United States except the Pacific Coast.

Sheets.—The independent Sheet mills are now in session with the Amalgamated Association, in this city, to arrange the Sheet scale for the year beginning July 1, but as yet no settlement has been reached. New tonnage in Sheets is very light, most of the mills running on old contracts, and in some cases have been compelled to adjust prices on these on a lower basis. We quote Black Sheets, box annealed, one pass through cold rolls, as follows: No. 26, 1.95c. to 2c.; No. 27, 2c. to 2.05c.; No. 28, 2.10c. to 2.15c. The lower prices are minimum of the market, and are made only on carloads and larger lots. Galvanized Sheets are selling at about 80 and 7½ per cent. off. In net prices this discount figures out as follows: Nos. 22 and 24, Galvanized Sheets, 2.50c.; Nos. 25 and 26, 2.77c.; No. 27, 2.96c., and No. 28, 3.14c. All above prices are for carloads and larger plots, jobbers charging the usual advances for small lots from store.

Iron and Steel Bars.—Tonnage in both Iron and Steel Bars is very light, as it always is at this season of the year. A number of the mills will close down about July 1 to make needed repairs and partly because of lack of orders. There is some buying of both Iron and Steel Bars in small lots, but consumers are not disposed to contract ahead. It is claimed that official prices on Steel Bars are being rigidly held by all the mills in the agreement, but there are several outside mills, including International Harvester Company, who are shading it \$1 to \$2 a ton. There is a good deal of unevenness in prices of Iron Bars, and we quote these at 1.30c. to 1.35c., f.o.b. Pittsburgh. We quote Steel Bars at 1.35c., Pittsburgh, in carloads and larger lots, with the usual differential for less than carloads. On Open Hearth Bars \$1 a ton advance is charged.

Railroad Spikes.—Only small orders are being placed and not very many of these. We quote Spikes at \$1.60 per 100 lbs., f.o.b. Pittsburgh.

Hoops and Bands.—Very little new tonnage is being placed, but it is claimed official prices on both Hoops and Bands are being rigidly held. We quote Hoops at 1.55c. and Steel Bands at 1.35c., extras as per Steel card.

Merchant Pipe.—A fair amount of tonnage is being placed, but the Pipe trade is not as active by any means as it was a month or two ago. It is said a great deal of tonnage in Pipe is being held back, in the belief that prices will be lower, and it is just possible that buyers who are refusing to place orders may have difficulty in getting delivery later in the year. There is more unevenness in prices of Pipe than for some time. Consumers' discounts in carloads, which are being materially shaded, are as follows:

	Steel.		Iron.	
	Black.	Galv.	Black.	Galv.
	Per cent.	Per cent.	Per cent.	Per cent.
½, ¾ and 1 inch.....	69	59	66	56
1½ inch.....	72	62	69	59
¾ to 6 inches.....	76	66	73	63
7 to 12 inches.....	71	61	68	58
Extra strong, plain ends,				
¾ to 8 inches.....	68	58	64	54
Double extra strong,				
plain ends, ¾ to 8				
inches.....	60	50	56	46

Boiler Tubes.—A fair tonnage is being placed in Boiler Tubes, but the mills are all keen for business and are shading prices considerably. Consumers' discounts in carloads, but which are being very materially shaded, are as follows:

	Steel.		Iron.	
	Black.	Galv.	Black.	Galv.
	Per cent.	Per cent.	Per cent.	Per cent.
1 to 1½ inches.....	42½		39	
1½ to 2½ inches.....	55½		38	
2½ inches.....	58		43	
2½ to 5 inches.....	64½		50½	
6 to 13 inches.....	55½		38	

Merchant Steel.—Indications are good for heavy crops this year, and this ought to be reflected by heavy demand for Merchant Steel from implement makers in the fall. New tonnage being placed just now is light, and a number of mills will close about July 1 for repairs and to allow expected orders to accumulate. We quote: Plow Slabs, ¾ inch and heavier, 1.60c.; Tire Steel, 1.55c. to 1.60c.; Sleigh Shoe, flat, 1.40c. to 1.45c.; Cutter Shoes, 2.05c. to 2.10c.; Plow Steel, 6 inches and under, 1.35c.; Toe Calk Steel, 1.85c. to 1.90c.; Crucible Tool Steel, 6c. to 8c. for ordinary grades, and 12c. and upward for special grades. Shafting is 52 per cent. off in carloads and 47 per cent. in less than carloads, delivered.

Spelter.—The market is very dull, demand being altogether for small lots. Prime grades of Western Spelter are held at 4.68½c. to 4.73½c., Pittsburgh, for spot shipment.

Tin Plate.—As yet there has been no settlement of the Tin Plate wage scale, but it may possibly be arranged before the conferences that are now in session have adjourned. The Tin Plate mills are running full on contracts and for spot shipment. Tin Plate demands a slight premium in price. We quote 100-lb. Cokes at \$3.40 per box, Pittsburgh.

Iron and Steel Scrap.—Nothing is doing in the Scrap market and prices are merely nominal. Heavy Melting Scrap is offered at \$11 per gross ton, and other kinds of Scrap are low in proportion.

Coke.—The low prices ruling for Furnace and Foundry Coke have become very attractive to consumers, who now offer to contract very far ahead, in some cases as long as one or two years. Strictly Connellsville Furnace Coke has sold for prompt shipment at \$1.40 to \$1.45, and 72-hour Foundry as low as \$1.80 to consumers. About 600 ovens were blown out last week, 340 by the Frick Coke Company and 255 by the Hostetter Connellsville Coke Company. Shipments last week showed a large falling off and will probably continue to decrease on account of the blowing out of a number of blast furnaces. Outside makes of Furnace Coke are being offered as low as \$1.25 a ton and Foundry \$1.60 to \$1.70 a ton.

The Pittsburgh Molders' Scale.—PITTSBURGH, PA., June 28, 1904.—By Telegraph.—Committees from the Iron Molders' Union, the local branch of the National Founders' Association, and also the Manufacturers' Association of Pittsburgh, have been in session in the Lewis Block, Pittsburgh, for several days, trying to arrange a scale of wages for molders for the year beginning July 1. Some time ago the employers notified their molders that they would demand a reduction in the minimum wage rate from \$3 per day to \$2.70 per day, and also desired some changes in shop rules. The molders refused to accept this proposition. While a scale has not yet been arranged satisfactory to both sides, it is probable that a settlement will be reached before the conferences adjourn. In the event of no scale being agreed upon before July 1, the molders will continue at work under provisions of the New York agreement, which prohibits a strike or lockout among the foundries pending a wage scale conference.

The New York Machinery Market.

NEW YORK, June 29, 1904.

Matters in connection with the purchase of materials for constructing the Pennsylvania Railroad's New York tunnel and particularly the East River section of it, are assuming interesting shape. The offices of S. Pearson & Son, Limited, 128 Broadway, New York, present a scene of great activity, as specifications are being issued for immense quantities of materials. E. W. Moir, who has gained a world wide reputation through his numerous important engineering feats throughout all sections of the globe, is in active charge of the work. The most important of all the specifications, of course, are those covering the castings or rings which are to form the tube and the screw piles which will support it. The castings will aggregate about 104,000 tons, and bids are now being submitted by the various foundry interests, who feel that they are in a position to undertake the furnishing of them. The difficulty which the bidders anticipate in connection with this undertaking is not so much the attainment of the rate of production required by the contractors as it is the delays which are apt to occur in the work, making it necessary for the foundries to withhold deliveries from time to time and thus necessitate either an accumulation of the finished castings or a shutting down of their plant, either of which, it is figured, will quickly consume expected profits. The maximum amount required will not exceed 4000 tons a month, and if this quantity can be used steadily by the contractors only two years' time will be required for the work. The foundries are figuring, however, on an extension of the work over a period of four years, although at the beginning of the work they may have to equip their plants to produce approximately the maximum quantity. The subject of delivery of iron also enters largely into this question, as the foundries will have to contract with the furnaces regardless of any delays which they may encounter on the part of the contractors. Another point which enters very heavily into the expense of the finished castings is the machinery. The specifications are the most rigid in this respect of any ever compiled on such work. The surfaces must be finished perfectly smooth.

Taking all of these points into consideration, the bidders are, we understand, quoting very firm figures. They are evidently somewhat in excess of the contractors' ideas of what they should be, for the Pearson Company are now investigating the subject of building or acquiring a plant for the production of the castings themselves. It is possible, therefore, that the contractors will buy the pig iron, availing themselves of the protection afforded by the warrant system, and then make and finish the castings. Mr. Moir stated to a representative of *The Iron Age* that the bidders were evidently charging a great deal more for the finishing of the rings than he thought they could be done for in view of his experience with the building of the Blackwell tunnel in London. He spoke of a special machine which he used in this work which he said could be advantageously employed on the rings for the Pennsylvania Railroad project. Whether or not the bidders will change their figures to suit Mr. Moir's ideas is a question which will be followed with interest.

During the last week Mr. Moir has issued specifications covering a large portion of the materials to be used in the work of construction. These include about 3900 tons of bolts and nuts, 1500 tons of steel and iron caisson work, large quantities of high and low pressure piping, eight shields and their hydraulic appurtenances, electric winding gears, six hoisting engines, six 5-ton steam cranes, ten air compressors, each to have a capacity of 500 cubic feet per minute, a large number of pumps, ten 500 horse-power boilers, a number of steam engines and generating sets, tramways and air locks. No definite date has been set for the opening of the bids, as the specifications were simply sent out as ordinary inquiries, requesting prices at the earliest date possible. No contracts whatever have been placed as yet.

In the machine tool trade a most interesting proposition has just come up in the way of specifications for about \$145,000 worth of machine tools for the Erie Railroad. The specifications call for all types of tools from the smallest to the largest sizes. They are to be distributed throughout all of the shops along the entire system. E. A. Williams, assistant general manager of the company, whose offices are located at 21 Cortlandt street, states that the orders will probably be placed within three or four weeks.

The equipment is now being purchased by the National Bridge Works, 1123 Broadway, New York, for their new plant at Long Island City. At that point the company have secured a large site upon which they are erecting a structural plant, which will have at the start an output of about 400 tons per month. It is their intention to equip the works with the most modern machinery, the main structure of which will be 100 x 200 feet. They will have ample storage facilities, and in addition to structural work the company will carry a large stock of iron and steel.

It seems from the extensive building operations undertaken by the Atchison, Topeka & Santa Fé Railroad at La Junta, Col., that a large number of the machine tools on their list which we printed a few weeks ago will be installed

at that point. It will be remembered, however, that the specifications covered tools for other points also. The buildings which are to be erected at La Junta consist of a machine, boiler and tender shop, 158 x 400 feet; blacksmith shop, 40 x 80 feet; power house, 85 x 125 feet, and several other buildings of smaller proportions.

The Mobile Stove & Pulley Mfg. Company, Mobile, Ala., recently organized, have taken over the business of the Edgar Foundry and are now purchasing the machinery for the extensions they are to make to the plant. Among the machines to be bought is a 10-foot boring and turning mill for turning pulleys. The company are building a new foundry of steel and iron which will be devoted to the production of stoves and stove ware. The present machine shop is to be utilized for stove fitting, and a new machine shop with treble the capacity of the old one is being erected on adjoining property. A four-story pattern shop has also been built. Besides these, many other improvements are under way and contemplated which will add greatly to their facilities. A. J. Parsons is secretary and treasurer.

A complete equipment of machinery is required by the Talk-O-Phone Company, Toledo, Ohio, for the addition to their plant. This building, which is being erected on Central avenue and the Michigan Central Railroad, will be 80 x 200 feet, of brick, two stories high, and will be devoted to light machinery work, assembling and packing. As the building is to be up and ready for occupancy by August 1 the company are anxious to get in touch with manufacturers of machinery at an early date in order to be able to place the tools in position as soon as the structure is completed.

About 70,000 horse-power of water turbines will shortly be purchased by W. P. Plummer, 29 Broadway, New York, for installation at the hydraulic plant of the Toronto & Niagara Falls Power Company on the Canadian side of Niagara Falls. Mr. Plummer is acting as purchasing agent for the company and has recently awarded a contract to the Canadian General Electric Company for the generating apparatus, including 45,000 kw. of generators in units of 7500 kw. each.

Contracts for the engines and other machinery will shortly be let by the New Castle Portland Cement Company, New Castle, Pa., for their new plant. The Buffalo, Rochester & Pittsburgh Railroad are building a siding to the works.

Under bids opened June 7 for supplies for the navy yards League Island, Washington and Annapolis, Class 48, two hoisting engines, was awarded to the New Jersey Foundry & Machine Company, New York, at their bid of \$1531.50.

The following bids were opened June 21 for machine tools for the various navy yards:

League Island, Pensacola, New York, Portsmouth Washington and Norfolk.

- Bidder 1. Mayer & Co., Norfolk, Va.
2. Manning, Maxwell & Moore, New York.
3. S. M. Price Machinery Company, Norfolk, Va.
4. International Sprinkler Company, informal; no guarantee.
5. Browning Engineering Company, Cleveland, Ohio.
6. John D. Westbrook, Norfolk, Va.
7. Brown & Sharpe Mfg. Company, Providence, R. I.
8. Clark Bros. Company, Belmont, N. Y., informal; no guarantee.
9. H. B. Smith Machine Company, Smithville, N. J.
10. A. B. See Electric Elevator Company, New York.
11. Baxter D. Whitney & Son, Winchendon, Mass.
12. Berlin Machine Works, Beloit, Wis.
13. The Bentel-Margendant Company, Hamilton, Ohio.
14. American Woodworking Machinery Company, New York.
15. The Henry Walke Company, Norfolk, Va.
16. Henry Pels & Co., New York.
17. John B. Roache, New York.
18. Pratt & Whitney Company, Hartford, Conn.
19. Handlan-Buck Mfg. Company, St. Louis, Mo.
20. The Ajax Mfg. Company, Cleveland, Ohio.
21. H. A. Rogers, New York.
22. Rand Drill Company, New York.
23. American Tool Works Company, Cincinnati, Ohio.
24. The Fairbanks Company, Baltimore, Md.
25. Cuyler & Mohler, Baltimore, Md.
26. Norberg Mfg. Company, Milwaukee, Wis.
27. Marine Engine & Machine Company, New York.
28. American Machinery Company, Grand Rapids, Mich.
29. The General Fire Extinguisher Company, Boston, Mass.
30. The Ingersoll-Sergeant Drill Company, New York.
31. The Fairbanks Company, New York.
32. The Walter H. Foster Company, New York.
33. Wm. H. Wood, Media, Pa.
34. Hill, Clarke & Co., Boston, Mass.
35. The Albion-Clem Elevator Company, Philadelphia.
36. Frank H. Woodruff, New York.
37. The Otis Elevator Company, New York.
38. The Wellman-Seaver-Morgan Company, Cleveland, Ohio.

39. The Bullard Machine Tool Company, Bridgeport, Conn.
 40. The Laidlaw-Dunn-Gordon Company, Philadelphia.
 41. S. A. Woods Machine Company, South Boston, Mass.
 42. The Warner Elevator Mfg. Company, Cincinnati, Ohio.

43. Fox Bros. & Co., New York.
 44. The Holzer-Cabot Electric Company, Brookline, Mass.

45. Lovegrove & Co., Incorporated, Philadelphia.
 46. Manhattan Supply Company, New York.
 47. Drew Machinery Agency, Manchester, N. H.
 48. Edw. J. Etting Company, Philadelphia.
 49. Niles-Bement-Pond Company, New York.
 50. Cleveland Punch & Shear Works Company, Cleveland, Ohio.

51. J. B. Kendall, Washington, D. C.
 52. The Alliance Machine Company, Alliance, Ohio.
 53. Industrial Works, Bay City, Mich.
 54. Morgan Engineering Company, Alliance, Ohio.
 55. Brown Hoisting & Machinery Company, New York.
 56. The Garvin Machine Company, New York.
 57. Morse-Williams Company, Philadelphia.
 58. Motley, Green & Co., New York.
 59. Apex Equipment Company, New York.
 60. Baltimore Machine & Elevator Works, Baltimore.
 61. American Hoist & Derrick Company, St. Paul, Minn.
 62. Municipal Engineering & Contracting Company, Chicago.

63. J. R. Van Dyck Company, New York.
 64. The Atlantic Works, Incorporated, Philadelphia.
 65. Prentiss Tool & Supply Company, New York.
 66. George Place, New York.
 67. A. D. Granger Company, New York.

- Class 1. One turret lathe—Bidder 2, \$1220; 18, \$1313; 32, \$1380.

- Class 2. One engine lathe—Bidder 2, \$933; 23, \$975; 31, \$960; 32, \$835; 49, \$800; 56, \$860; 58, \$875; 65, \$982.

- Class 3. One pattern maker's wood lathe—Bidder 2, \$160; 13, \$136; 14, \$136.63; 28, \$238.50; 31, \$130; 45, \$250; 64, \$160; 66, \$194.

- Class 4. One tool maker's lathe—Bidder 18, \$595.50.

- Class 5. One hand and power upright or post drill—Bidder 2, \$43; 19, \$55; 31, \$45.80; 43, \$43.70.

- Class 6. One full universal radial drilling machine—Bidder 2, \$959; 34, \$1000; 47, \$1065; 49, \$1675 and \$795; 63, \$985; 65, \$1190.

- Class 7. One sensitive drill press—Bidder 2, \$105 and \$75; 31, \$74.50; 56, \$75; 58, \$62.50.

- Class 8. One double punch and shearing machine—Bidder 2, \$2830; 31, \$3250; 47, \$3950, \$3350 and \$3420; 48, \$3900; 49, \$3495 and \$3422; 50, \$3375; 52, \$2970; 54, \$3045; 63, \$3386.

- Class 9. One vertical punch—Bidder 2, \$845; 16, \$1000; 19, \$1266; 31, \$945; 47, \$847; 48, \$1150; 49, \$783 and \$735; 50, \$840; 52, \$995.

- Class 10. One double punch and shear—Bidder 2, \$780; 19, \$840; 31, \$550; 47, \$830, \$750 and \$680; 48, \$900; 49, \$513; 50, \$700; 52, \$1385; 63, \$650.

- Class 11. Electric motors, controlling panels, &c.—Bidder 44, \$1500; 47, \$1220; 49, \$1174.

- Class 12. One electrically driven combination crank shaper—Bidder 2, \$840; 32, \$897; 49, \$880.

- Class 13. One single traveling head shaper—Bidder 2, \$1565 and \$1350; 49, \$1435; 65, \$1615.

- Class 14. One heavy timber planing machine—Bidder 2, \$2225; 12, \$1800; 14, \$2402.88; 64, \$2000; 66, \$2649.

- Class 15. One dimension planing machine—Bidder 12, \$1400; 64, \$2100; 66, \$2189.

- Class 16. One 42-inch planing machine, motor driven—Bidder 2, \$2934 and \$2500; 31, \$2410; 47, \$2990; 49, \$2740; 63, \$2070; 65, \$2385.

- Class 17. One single surface planing machine—Bidder 2, \$580 and \$195; 9, \$500; 11, \$527; 12, \$390; 13, \$490; 14, \$495; 31, \$265; 47, \$879, \$482 and \$360; 64, \$200; 65, \$397; 66, \$474.

- Class 18. One plate planing machine—Bidder 2, \$3475, \$4135 and \$4375; 49, \$3097 and \$3697; 50, \$3150.

- Class 19. One hand planer and jointer—Bidder 28, \$838.26; 49, \$690; 64, \$200; 66, \$584.

- Class 20. One cutter grinding machine, motor driven—Bidder 7, \$307; 24, \$305; 65, \$314.

- Class 21. Two single emery grinders—Bidder 2, \$500; 31, \$546; 49, \$568; 65, \$372.

- Class 22. One improved combination cross cut saw, dado and rip saw machine—Bidder 2, \$260; 47, \$271.50; 64, \$200; 66, \$199.

- Class 23a. One improved scroll saw—Bidder 2, \$90; 13, \$166; 14, \$100; 47, \$77; 64, \$100; 65, \$82; 66, \$97.

- Class 23b—Bidder 2, \$125 and \$235; 9, \$135; 13, \$144; 14, \$135.14; 28, \$217.75; 31, \$107; 41, \$236; 47, \$138 and \$133; 64, \$125; 65, \$137; 66, \$149.

- Class 24. One band sawmill—Bidder 47, \$4975, \$5336 and \$6420; 66, \$4674.

- Class 25. One band scroll and resaw machine—Bidder 47, \$533; 64, \$450; 66, \$749.

- Class 26. One power band saw setting and filing machine—Bidder 2, \$80 and \$90; 64, \$90.

- Class 27. One saw bench—Bidder 14, \$321; 28, \$318; 34, \$299; 47, \$289.50; 49, \$315; 64, \$260; 66, \$271.

- Class 28. One ripping saw table—Bidder 2, \$540; 12, \$285; 13, \$360; 47, \$530; 64, \$400; 66, \$428.

- Class 29. One upright molding machine—Bidder 2, \$468; 41, \$471; 66, \$289.

- Class 30. One outside molder—Bidder 2, \$765; 9, \$540, \$538 and \$650; 13, \$420; 14, \$491.34; 31, \$565; 41, \$685; 47, \$535; 65, \$645; 66, \$245.

- Class 31. One power mortising machine—Bidder 2, \$150; 9, \$145; 13, \$160; 14, \$159.36; 47, \$149; 64, \$200; 65, \$143; 66, \$219.

- Class 32. One single end tenoning machine—Bidder 2, \$195; 9, \$190; 13, \$200; 14, \$221.38; 47, \$195; 63, \$208; 66, \$245.

- Class 33. One turret head, bolt cutting machine—Bidder 18, \$386; 32, \$365.

- Class 34. One bolt and rivet machine—Bidder 19, \$2400; 20, \$1610; 47, \$2220.

- Class 35. One electric driven pipe threading and cutting machine—Bidder 2, \$920; 25, \$955; 34, \$884; 46, \$597; 47, \$1000 and \$495.

- Class 36. One automatic screw machine with screw slotting attachment—Bidder 2, \$1104; 7, \$1106; 18, \$889.

- Class 37. One thread milling machine—Bidder 18, \$965.

- Class 38. One hydraulic keel plate bending machine—Bidder 2, \$7750; 33, \$7795; 49, \$7994; 52, \$7955; 54, \$6385.

- Class 39. One boring and turning mill—Bidder 2, \$1450; 34, \$1595; 39, \$1330; 49, \$1290; 65, \$1395.

- Class 40. One duplex folding and seaming press, motor driven—Bidder 31, \$935; 49, \$965.

- Class 41. Two arbor presses—Bidder 2, \$50; 31, \$47.60; 34, \$51; 47, \$52; 49, \$50.

- Class 42. One 20-ton locomotive steam crane, &c.—Bidder 5, \$8785, \$9285 and \$9695; 38, \$13,797; 52, informal; 53, \$8807; 61, \$8607 and \$9307.

- Class 43. One 10-ton locomotive crane and one 40-ton locomotive steam crane—Bidder 2, \$6800 and \$8300 and \$7300 for item 1 only; 5, item 1, \$5400; item 2, \$14,000 and \$11,000; 38, item 1, \$7492; 50, item 1, \$9250; item 2, \$19,400; 52, item 1, \$6400, and item 2, \$14,800; 53, item 1, \$5150; item 2, \$10,450; 55, item 1, \$6800; 61, item 1, \$6700.

- Class 44. One horizontal two-stage steam driven air compressor—Bidder 2, \$13,124; 22, \$11,000; 26, \$14,850; 30, \$13,122; 40, \$9785.

- Class 45. One cube concrete mixer—Bidder 2, \$1075; 36, \$1150; 62, \$969.02.

- Class 46. One direct electric passenger and freight elevator—Bidder 10, \$2275; 27, \$2865; 35, \$1185; 37, \$2265; 42, \$2125; 57, \$2050; 60, \$1977.

- Class 47. One electric elevator—Bidder 27, \$4975; 37, \$3870; 60, \$3529.

- Class 48. One 80 horse-power return tubular boiler—Bidder 1, \$1196; 3, \$972.50 and \$987.50; 6, \$782.50; 15, \$900 and \$908.75; 43, \$868; 45, \$890; 58, \$798.50; 59, \$780; 67, \$899.

- Class 49. Hydraulic jacks—Bidder 2, \$598 and \$662.80; 17, \$680; 21, \$627.36; 43, \$530; 51, \$611.60; 58, \$622; 59, \$328 and \$377.50.

- Class 50. Twelve special hand trucks—Bidder 2, \$182.88; 43, \$182.28; 49, \$234.

- Class 51. Fire Extinguishing apparatus—Bidder 29, \$4699.

Mare Island and Puget Sound.

- Bidder 1. J. W. Cregar Agency, Philadelphia.
 2. Walter H. Foster Company, New York.
 3. Harron, Rickard & McCone, San Francisco, Cal.
 4. The Eby Machinery Company, San Francisco, Cal.
 5. Pacific Tool & Supply Company, San Francisco, Cal.
 6. The Hallidie-Henshaw-Buckley Company, Seattle, Wash.
 7. J. R. Phillips & Sons Company, Philadelphia, informal; no guarantee.
 8. Prentiss Tool & Supply Company, New York.
 9. Camden Iron Works, Camden, N. J.
 10. The Fox Machine Company, Grand Rapids, Mich.
 11. The Garvin Machine Company, New York.
 12. General Electric Company, Schenectady, N. Y.
 13. Henshaw, Buckley & Co., San Francisco, Cal.
 14. Tatum & Bowen, San Francisco, Cal.
 15. Wm. Sellers & Co., Incorporated, Philadelphia.
 16. The Falkenan-Sinclair Machine Company, Philadelphia.
 17. The George F. Blake Mfg. Company, New York.
 18. Niles-Bement-Pond Company, New York.
 19. Henry Peis & Co., New York.
 20. Fox Bros. & Co., New York.
 21. Manning, Maxwell & Moore, New York.
 22. Marshall T. Davidson, Brooklyn, N. Y.
 23. Westinghouse Electrical Mfg. Company, Pittsburgh, Pa.
 24. Drew Machinery Agency, Manchester, N. H.

25. Moran Bros. Company, Seattle, Wash.
26. Williams, White & Co., Moline, Ill.
27. George A. Ohl & Co., Newark, N. J.
28. Wilmarth & Morman Company, Grand Rapids, Mich.
29. Potter & Johnston Machine Company, Pawtucket, R. I.
30. Handlan-Buck Mfg. Company, St. Louis, Mo.
31. Baker & Hamilton, San Francisco, Cal.
32. George E. Dow Pumping Engine Company, San Francisco, Cal.

Class 1. Three induction motors and one motor of 2 horse-power and one 3 horse-power motor delivered at the wharf of the navy yard—Bidder 12, \$726.35; 23, \$715.25.

Class 2. One lever punch—Bidder 3, \$14; 5, \$35; 13, \$16.50; 14, \$17.30; 19, \$38; 24, \$54; 28, \$40; 30, \$36.

Class 3. One 30-inch squaring shears—Bidder 3, \$53; 5, \$60; 13, \$50; 14, \$48.95; 30, \$55.

Class 4. One power squaring shears—Bidder 3, \$602; 5, \$545; 13, \$560 and \$595; 14, \$549.50; 24, \$680, \$800, \$815, \$830, \$860 and \$825; 27, \$565; 30, \$825 and \$630.

Class 5. One 2-inch by 24-inch flat turret lathe—Bidder 2, \$1702; 5, \$1525; 11, \$1240; 13, \$1445 and \$1495; 18, \$2200; 21, \$1051.

Class 6. One power punching press—Bidder 3, \$445; 5, \$440; 13, \$450; 14, \$403; 16, \$426; 18, \$525; 30, \$460.

Class 7. One 12-inch sensitive drill press—Bidder 3, \$72; 5, \$65; 10, \$71; 11, \$65; 13, \$60; 14, \$57.50; 30, \$70.

Class 8. One twist drill grinder—Bidder 3, \$80; 5, \$85; 13, \$66; 14, \$72.50; 15, \$240; 24, \$78; 28, \$71.50; 30, \$250.

Class 9. One patent automatic dovetailing machine—Bidder 3, \$454; 4, \$450; 13, \$354; 24, \$295.

Class 10. One improved double spindle shaper—Bidder 3, \$212; 4, \$210; 10, \$189; 13, \$226; 14, \$203.

Class 11. One centrifugal blower—Bidder 3, \$27; 13, \$43; 14, \$33.

Class 12. One bolt heading and rivet machine, motor driven—Bidder 1, \$2000; 3, \$2008; 8, \$1240; 13, \$1720, \$1800, \$1810 and \$1260; 14, \$2430; 18, \$2095; 21, \$1050; 24, \$2255; 26, \$2100; 30, \$1925.

Class 13. One high speed punch—Bidder 3, \$348, \$386 and \$407; 13, \$380; 18, \$408; 24, \$585, \$790, \$970; 30, \$320, \$365 and \$410.

Class 14. One steam glue heater—Bidder 14, \$22; 24, \$29.

Class 15. One first quality grindstone—Bidder 13, \$135; 14, \$108; 15, \$260; 18, \$135; 20, \$110.

Class 16. One vertical 10 horse-power engine—Bidder 3, \$608; 13, \$192; 24, \$208 and \$240; 31, \$148.

Class 17. One emery grinder—Bidder 3, \$59.40; 5, \$70; 13, \$52; 14, \$50.90; 18, \$65; 28, \$66.05.

Class 18. One double triple quick stroke shaper—Bidder 3, \$679; 5, \$355; 10, \$337; 13, \$530; 21, \$396.

Class 19. One upright drill—Bidder 3, \$213; 5, \$125; 11, \$140; 13, \$125; 21, \$115; 30, \$160.

Class 20. One horizontal boring and drilling machine—Bidder 3, \$2035; 5, \$1810; 13, \$998; 14, \$1050; 18, \$998 and \$1068; 21, \$1080; 30, \$450.

Class 21. One 14-inch tool room lathe—Bidder 3, \$458; 5, \$529.50; 11, \$450; 13, \$480; 14, \$461; 18, \$620; 21, \$462.

Class 22. One engine lathe with 12-foot bed—Bidder 2, \$1000; 3, \$1080; 5, \$1080; 11, \$862; 13, \$900; 14, \$800; 18, \$1125; 21, \$971.

Class 23. Two high speed back geared lathes—Bidder 2, \$1470; 3, \$1269; 5, \$1420; 13, \$1250; 14, \$1234; 18, \$2120; 21, \$1464.

Class 24. One cast iron exhaust fan—Bidder 3, \$27; 14, \$29.30.

Class 25. One double triple quick stroke shaper—Bidder 2, \$745; 3, \$585; 10, \$651.50; 13, \$690; 14, \$585; 21, \$636; 29, \$760.

Class 26. One key seater—Bidder 3, \$443; 13, \$350; 14, \$355, \$350 and \$310; 21, \$360; 24, \$605; 30, \$445.

Class 27. One hydrostatic wheel press with iron base—Bidder 9, \$1750; 13, \$1640; 14, \$1640 and \$2197; 21, \$2210; 24, \$2250; 30, \$1960.

Class 28. One heavy buffing lathe—Bidder 3, \$51; 5, \$75; 13, \$98; 14, \$110; 21, \$90.

Class 29. One marine vertical pump—Bidder 3, \$486; 6, \$448.20; 17, \$465; 22, \$365; 24, \$457.50 and \$370; 25, \$440, \$586 and \$682; 32, \$780.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until July 19 for the following machine tools for the Portsmouth, Boston, New York, League Island and Norfolk navy yards:

Class 1. One 14-inch back geared engine lathe, with 10-foot bed.

Class 2. One 34-inch triple geared motor driven engine lathe, with 28-foot bed.

Class 3. One 28-inch motor driven engine lathe, with 14-foot bed.

Class 4. One single steam driven air compressor, capacity 235 cubic feet of free air per minute.

Class 5. One motor driven cold saw cutting off machine.

Class 6. One 36 x 6 inch electrically driven grindstone.

Class 7. One four-spindle motor driven multiple drilling machine.

Class 8. One drilling machine of 3000 feet capacity, capable of drilling a 2 1-16 inch hole, with a quantity of drill rods, pump, 20 horse-power gasoline engine and other equipment.

Class 9. One horizontal and radial drill complete with back gears and arbor rests.

Class 10. One 28-inch upright drill press.

Class 11. One 34-inch upright drill press.

Class 12. One special universal adjustable drill press with four spindles.

Class 13. One universal milling machine, electric driven, with motor, vertical spindle attachment, high speed attachment, cutters, arbors, &c.

Class 14. One 30-inch boring and turning mill.

Class 17. Two rotary converters.

The following bids were opened June 22 for supplies for Mare Island Navy Yard:

Bidder 1. J. W. Creager Agency, Philadelphia, Pa.

2. Drew Machinery Agency, Manchester, N. H.

3. Berlin Machine Works, Beloit, Wis.

4. Cuyler & Mohler, Baltimore, Md.

5. Henshaw, Bulkley & Co., San Francisco, Cal.

6. Richard H. Grey, San Francisco, Cal.

7. Harron, Rickard & McCone, San Francisco, Cal.

8. Tatum & Bowen, San Francisco, Cal.

9. Compressed Air Machinery Company, San Francisco, Cal.

10. Wm. Sellers & Co., Philadelphia, Pa.

11. General Incandescent Arc Light Company, New York.

12. Manhattan Supply Company, New York.

13. R. C. Hoffman & Co., Baltimore, Md.

14. Manning, Maxwell & Moore, New York.

15. Niles-Bement-Pond Company, New York.

16. Bethlehem Steel Company, South Bethlehem, Pa.

17. Crocker-Wheeler Company, Ampere, N. J.

Class 1. One turret lathe, 24-inch swing—Bidder 5, \$1915; 9, \$1864; 14, \$1450 and \$1525; 15, \$2170.

Class 2. Wooden turret lathes, motor driven, dust proof—Bidder 8, \$3267.

Class 3. One double dry grinder, motor driven, dust proof—Bidder 5, \$241 and \$250; 11, \$178; 14, \$340 and \$353; 17, \$233.

Class 4. One plain double dry grinder, motor driven, dust proof—Bidder 5, \$255; 11, \$192.50; 14, \$353; 17, \$233.

Class 5. One plain double grinder, motor driven—Bidder 5, \$380; 11, \$244.50; 14, \$482; 17, \$395.

Class 6. One automatic knife grinder, motor driven—Bidder 3, \$450; 5, \$380; 7, \$410; 8, \$425; 17, \$371.

Class 7. One universal tool grinding machine, motor driven—Bidder 5, \$555 and \$585; 10, \$920.

Class 8. One improved scroll saw, motor driven, dust proof—Bidder 5, \$260; 8, \$303.

Class 9. One 42-inch band saw, scroll and resaw—Bidder 5, \$840; 8, \$954.

Class 10. One improved band sawing machine—Bidder 5, \$530; 8, \$511.

Class 11. One heavy pattern motor driven lightening self feeding rip saw table—Bidder 3, \$560; 5, \$653 and \$598; 8, \$980.

Class 12. One metal cutting circular saw table—Bidder 5, \$282.

Class 13. Two shapers, motor driven—Bidder 5, \$1996; 8, \$1430; 9, \$1438.

Class 14. One improved hand jointer—Bidder 3, \$315; 5, \$292 and \$322; 8, \$362.50.

Class 15. One double spindle upright molding machine, dust proof—Bidder 3, \$340; 5, \$385; 7, \$723; 8, \$606.

Class 16. One automatic plug cutting machine—Bidder 7, \$1014.

Class 17. One pipe threading and cutting machine—Bidder 2, \$672, \$1022 and \$1165; 4, \$1105; 5, \$965 and \$800; 7, \$884; 12, \$860; 14, \$977.

Class 18. One four-spindle nut taper—Bidder 1, \$890; 2, \$437 and \$396; 5, \$510 and \$490; 7, \$462; 14, \$410; 15, \$595.

Class 19. One electrically operated sensitive bench drill—Bidder 2, \$1758; 7, \$506.40; 15, \$594.

Class 20. One 4-inch heading, upsetting and forging machine—Bidder 1, \$6100; 2, \$7100; 5, \$6090; 7, \$6490; 14, \$5725; 15, \$6195.

Class 21. One steam glue heater—Bidder 2, \$29; 8, \$22.

Class 22. One finished tail shaft—Bidder 6, \$932.49; 13, \$538.20; 16, \$936.

The contract for the installation of turbo-generator outfit at the naval station, New Orleans, La., has been awarded to the General Electric Company, Schenectady, N. Y., at \$61,495 on items 1, 3, 5 and 8 of the specifications.

The Bureau of Yards and Docks, Navy Department, Washington, will receive bids until July 16 for two 500-kw. generator sets for the Washington Navy Yard.

Arrangements have just been consummated between the Baldwin Locomotive Works, Philadelphia, and Arthur Koppel, 66 Broad street, New York, whereby the latter concern will sell Baldwin locomotives of all classes and sizes for any gauge for all kinds of motive power—steam, electric or compressed air. Arthur Koppel has issued supplement No. 2

to Catalogue No. 77, which is something entirely new in his business, in that it illustrates solely the Baldwin engines.

Cincinnati Machinery Market.

CINCINNATI, OHIO, June 27, 1904.

A review of the Cincinnati machine tool situation for the month of June shows a somewhat better feeling existing. Inquiries and orders, both foreign and domestic, are in better evidence than during the month preceding. March and April were regarded as fairly good months in comparison with the earlier spring trade, and it was hoped and expected that May would surpass them in volume of business, but such proved not to be the case, as when the books were closed at the end of May there was shown to be quite a falling off in orders. In April several of our largest shops, feeling the effect of stimulated trade, concluded it would be advisable to return to former practices, and to this end put on nearly their old force of employees, but when May came it was seen that they had been too sanguine in anticipating an early return of activity, and retrenchment was again the order. The shops of this city generally are very slightly affected by any special demand by reason of the war in the Far East. Several of them, however, report inquiries in this direction, and a few shipments have been made direct, but in no considerable quantity. Engine builders, for the most part, report a slight increase in sales with quite a number of new contracts under advisement. But this additional trade has been secured at the expense of a shading in prices, which has had the effect of bringing out the waiting buyers.

F. A. Geier, secretary and treasurer of the Cincinnati Milling Machine Company, who recently returned from an extended trip abroad, was interviewed relative to trade conditions on the Continent, and expressed himself as follows:

"As a summary of observations on the machine tool trade throughout Europe, I would state that conditions have considerably changed from those I found on my previous trip in the year 1900. In the spring of 1900 the sale of American machine tools in Europe reached high water mark. Then came the depression in trade throughout Europe, and the consumption of American machinery reached its lowest level. These three years of depressed business in Europe gave the European machine tool builders an opportunity of going into the manufacture of machine tools designed on American lines. In consequence a great many machines are to be found in the stores of the machine tool dealers, products of the European shops, standing side by side with American tools. Many of these machines are excellent productions, and compare very favorably in design and finish with their American prototypes. These machines are being marketed at a price appreciably lower than similar American machines. This is particularly true of the simpler machine tools. Because of these new conditions, and a tendency on the part of some of our most important customers in the past, notably Germany, to raise their tariff, it is getting increasingly difficult for the American manufacturer to do business in these foreign countries, particularly on the simpler machines.

"Business conditions in Europe, especially on the Continent, are rapidly improving, and as a consequence the market for machinery is more active. Many of the better shops in Europe, through the experience gathered from the use of American machines, are still buying the best types of machines obtainable. There remains, therefore, a considerable market for machines of this class, particularly automatic screw machines, grinding machines, turret lathes and similar machines. The American manufacturer, however, is being called upon to do more aggressive work to bring the merits of his machines to the attention of the user, and such concerns who are sending expert operators and demonstrators into this field are being rewarded with a good share of this business. The future of this trade, of course, is more or less uncertain. The high cost of our labor and material is a big handicap. While the American manufacturer cannot do impossible things, I thoroughly believe that if he will visit those countries, studying the conditions which he must meet, he will find ways and means which will place him in a position to share in this business for many years to come."

The new plant of the Cincinnati Machine Tool Company is rapidly nearing completion, and they expect to occupy it within a few weeks. The building is equipped with brick stacks for heating ducts, there being no interior hot air pipe to interfere with the movement of their cranes and other machinery, thereby giving a flat surface to the inner walls. The automobile interests throughout the country have become quite important factors in the line of purchasers. Foreign trade is only fair.

The Blymyer Company report Spanish-American trade good, as well as sorghum machinery for the Southern States.

The Cincinnati Milling Machine Company secured from the Canadian Westinghouse Electric & Mfg. Company, Hamilton, Ontario, an order for 11 milling machines and two

cutter grinders. This is probably one of the largest orders for milling machines that has been placed for some time.

The R. K. Le Blond Machine Tool Company report a fair trade only, with inquiries developing that it is hoped may materialize.

Greaves & Klusman shipped two of their lathes to England, and report more activity from this section. Domestic trade is better than it was in May, but not flattering.

The John Steptoe Shaper Company shipped a machine to Tokio and one to Osaka Arsenal for the Japanese Government, and have one ready to go forward to Yokohama. Their orders are falling off somewhat, and they are not so crowded as they were a month previous.

The I. & E. Greenwald Company report the coal washer trade looking up. They have installed a 250 horse-power engine in the Charles Boldt Glass Company's plant and a 150 horse-power engine in the Steinman-Mayer Company's furniture plant, this city, and are at present shipping a 250 horse-power engine for the paper company at Miamisburg, Ohio.

The Heise Wolf Machine Company have not as yet decided on any new location for their plant. They hope within the next 30 days to have their plans settled.

The Esterlein Machine Tool Company, whose lease expires in their present quarters January 1, are at work on their plans for the new buildings, which they will erect on Spring Grove avenue in the near future.

New York.

NEW YORK, June 29, 1904.

Pig Iron.—The market has been quiet in this immediate district. A good deal of interest attaches to the bids now being put in by foundries for the work for the second section of the Pennsylvania tunnel, calling for 104,000 tons of Castings, deliveries to extend over four years. It is possible that the contractor may install his own foundry to do the work. There appears to be little chance of business in export of Pig Iron. The rate from Birmingham to Genoa is \$3.25 to \$3.50, No. 3 selling in that market at about 49 shillings. We continue to quote for Northern brands, at tidewater, \$14.75 to \$15 for No. 1 Foundry, \$13.75 to \$14.25 for No. 2 Foundry and \$12.75 to \$13 for Gray Forge. Tennessee and Alabama brands are quoted \$12.75 to \$13.25 for No. 2 Foundry and \$12.25 to \$12.75 for No. 3 Foundry.

Steel Rails.—Nothing new is reported in the Rail trade.

Cast Iron Pipe.—So far as can be ascertained, very little business was placed in this locality during the past week. No orders of any moment are in immediate prospect, and small lots are much less numerous than they were during the spring months. Reports relative to the city high pressure service are that progress is being made in the engineering preparations, but it will probably be a couple of months until the work is in shape for inviting proposals. Quotations on carloads are continued at \$28 per gross ton for 6 to 10 inch and \$27 for 12-inch upward, at tidewater, but desirable orders can be placed at lower figures.

Finished Iron and Steel.—Some fair orders for Structural Material have been placed in Western Pennsylvania, but business in other localities has been light. No improvement is noted in local building circles, but it is now believed that matters are at their worst. Plans are being prepared for quite a number of good sized Steel frame structures which will shortly be in a position to receive attention from contractors. It is expected that if nothing unfavorable occurs quite a number of ambitious projects will be placed in hand during the summer or fall. The outlook for railway bridge work is as unpromising as before. Inquiries from this direction are rare. The Plate trade shows no animation, orders being confined to small quantities, even carload lots being rare. The Bar Iron trade shows no change from recent conditions. While orders are fairly numerous, the quantities placed are small. Prices are maintained, as many mills are now about to close for repairs and the pressure to sell is not strong. We quote, at tidewater, as follows: Beams, Channels, Angles and Zees, 1.74½c. to 2c.; Tees, 1.79½c. to 2c.; Bulb Angles and Deck Beams, 1.84½c. to 2.05c. Sheared Plates in carload lots are 1.74½c. to 1.85c. for Tank, 1.84½c. to 2c. for Flange, 1.94½c. to 2.10c. for Marine and 1.94½c. to 2.50c. for Fire Box, according to specifications. Refined Bar Iron, 1.44½c. to 1.49½c.; Soft Steel Bars, 1.49½c.

Old Material.—Consumers are taking advantage of the position of sellers in certain lines. Knowing that stocks are large, the former are making offers at lower prices than those which have prevailed for some time, and these prices have been accepted for considerable quantities. In this way quite a movement has occurred during the week in heavy melting Steel Scrap and in Cast Scrap. The prices made have in some instances gone fully \$1 per ton under our quotations. The low prices thus secured by consumers are not accepted as actual market rates, since it might be difficult for the ordinary buyer to duplicate such transactions. Quotations per gross ton, New York and vicinity, are as follows:

Old Iron Rails.....	\$14.00 to \$14.50
Old Steel Rails, long lengths.....	12.00 to 12.50
Old Steel Rails, short pieces.....	10.00 to 10.50
Relaying Rails.....	16.00 to 17.00
Old Car Wheels.....	10.00 to 11.00
Old Iron Car Axles.....	15.50 to 16.00
Old Steel Car Axles.....	14.00 to 14.50
Heavy Melting Steel Scrap.....	10.00 to 10.50
No. 1 Railroad Wrought Scrap.....	11.50 to 12.00
Iron Track Scrap.....	10.50 to 11.00
Wrought Pipe.....	7.50 to 8.00
Ordinary Light Iron.....	4.50 to 5.00
Cast Borings.....	3.50 to 4.00
Wrought Turnings.....	5.50 to 6.00
No. 1 Machinery Cast.....	9.00 to 10.00
Stove Plate.....	7.50 to 8.00

Metal Market.

NEW YORK, June 29, 1904.

Pig Tin.—A futile attempt to raise the level of prices was made in London several days ago. So complete was the failure that despite the heroic efforts prices are again back to the position which they held prior to the movement. This market simply followed along a pace to the rear of the London market, and it moved in this relation parallel to the London fluctuations. All attempts to bring about an independent movement in this market or transfer the leadership to this side of the water were fruitless. Starting at about the prices which we quoted last week, the London manipulators began to send prices up peg by peg with the object of creating the appearance of a natural reversal of conditions. Then prices were shot up rapidly until an advance of £2 had been scored. In the meantime this market followed sluggishly, reaching 20½c., but throughout all the movement was confined entirely within the sphere of the original speculators. Immediately the fictitious values commenced to topple and they went straight back to their original level. The London market is at this writing a little higher than it was a week ago, but here the figures are just the same as they were at our last writing. At the close to-day spot, June and July deliveries are quoted 25.50c. to 25.75c. London is cabled £117 for spot and £116 17s. 6d. for futures. Consuming demand is still very slack. The arrivals this month have now footed up to 3150 tons, and it is figured that 1719 tons are afloat. On all sides it is reported that the shipments from the Straits this month will be unusually large.

Copper.—The market is very quiet and without an interesting feature. Prices remain unchanged. Domestic demand continues to be very meager, and while there is a small amount of the metal sold for export each day, nothing in a large way is transpiring in this connection. It is now figured that the exports for this month will fall from 1000 to 1500 tons short of last month's total. At this writing they amount to 12,773 tons. Prices are as follows: Lake, 12.62½c. to 12.75c.; Electrolytic, 12.40c. to 12.62½c.; Casting, 12.12½c. to 12.25c. The London market has advanced a shade to £56 18s. 9d. for spot and £56 11s. 3d. for futures. Best Selected has advanced 5 shillings, to £60 10s.

Pig Lead.—Although consuming business continues on a small scale, the market has become firmer here for spot, and St. Louis has experienced a slight advance. The American Smelting & Refining Company have, however, continued to stand by their prices, and are quoting Desilverized in 50-ton lots, 30 days' shipment, at 4.20c. Spot is quoted here at 4.25c. to 4.35c. St. Louis telegraphs 4.12½c., and the London market is unchanged at £11 10s.

Spelter.—Prices in this market and at St. Louis have been advanced considerably, and the London market also shows an increase in price. No reason is assigned for the change, as it is generally admitted that no increase in demand is to be noted. Spot is quoted here 4.85c. to 4.90c., while St. Louis quotes 4.70c. to 4.75c., and the London cable named £22 to-day.

Antimony.—The market is unchanged. Hallett and Cookson's are both quoted at 7.25c., and other brands are unchanged at 6.25c.

Nickel.—The usual amount of business is passing and prices are firm, large lots being quoted at 40c. to 45c. and smaller quantities at 50c. to 60c.

Quicksilver.—The market is quiet, with ample stocks and a demand of moderate proportions. Flasks of 76½ lbs. are quoted at \$45. The London price has declined to £8.

Tin Plate.—The market is unchanged, with a fair demand reported. Quotations are very firm, on the basis of \$3.45 per box for 14 x 20 100-lb. Cokes, f.o.b. mill, equivalent to \$3.64, New York. The Welsh market is unchanged at 11 shillings 3 pence, f.o.b. Swansea.

The Sheet and Tin Plate Scales Settled.—PITTSBURGH, PA., June 28, 1904.—(By Telegraph.)—While some details remain to be arranged, an agreement has been reached between the American Sheet & Tin Plate Company, the outside sheet and tin plate mills and the Amalgamated Association on the sheet and tin plate wage scales for the year commencing July 1. The Amalga-

ated Association proposed a reduction of only 10 per cent. over the 1903-4 scale, but the manufacturers insisted upon an 18 per cent. reduction, which would give the same rate of wages that have been in force in the sheet and tin plate mills since early in April. After conferences lasting over a week the Amalgamated Association conceded the 18 per cent. reduction, and the same rates of wages will prevail in sheet and tin plate mills for the year beginning July 1 as are now in force. The 3 per cent. rebate in wages on tin plate made for export is a point not yet settled. The American Sheet & Tin Plate Company wish this 3 per cent. rebate continued, while the Amalgamated Association wants it eliminated. This question is now being discussed in a conference which is in session in this city between committees of the Amalgamated Association and the American Sheet & Tin Plate Company. It is practically certain that it will be arranged within a day or two.

Iron and Industrial Stocks.

The week has been almost featureless. Transactions have been light. Car & Foundry common is somewhat lower as a result of the announcement that the quarterly dividend will be passed for the next period. The United States Steel stocks were quite strong during the greater part of the week, the common touching 10 for the first time in a number of months. The preferred sold up to 56½. The new 5 per cent. bonds were also quite strong, touching 75¼. Can preferred continues to show strength under the belief of the early declaration of another dividend. Taking the entire list, however, the fluctuations during the week have been quite narrow. Last transactions on active stocks up to 1.30 p. m. on Wednesday were as follows: Car & Foundry common 16, preferred 71½; Locomotive common 19, preferred 83½; Colorado Fuel 30; Pressed Steel common 27¼, preferred 71; Railway Spring common 17, preferred 75; Republic common 6¼, preferred 40¼; Sloss-Sheffield common 34¼, preferred 82; Tennessee Coal 35; United States Steel common 9¼, preferred 55½, new 5's 75½.

Dividends.—American Locomotive Company have declared the regular quarterly dividend of 1¼ per cent. on the preferred stock, payable July 21.

E. W. Bliss Company have declared quarterly dividends of 2½ per cent. on the common stock and 2 per cent. on the preferred stock, both payable July 1.

Union Switch & Signal Company, Pittsburgh, have declared a quarterly dividend of 2½ per cent. on the preferred stock and 2 per cent. on the common.

The directors of the Westinghouse Electric Mfg. Company, Pittsburgh, have declared the regular quarterly dividend of 2½ per cent. on the preferred and assenting and nonassenting stocks of the company, payable July 11.

The blast furnace of the Carnegie Steel Company, at South Sharon, Pa., has been blown out and will be relined. It will be idle about two months. Active work has been started changing the sheet plant at the South Sharon Works, so that sheets can be rolled by the Bray continuous rolling process. A number of continuous heating furnaces, roughing mills and other equipment will be installed. It will be three or four months before this plant is ready to roll sheets by the Bray process.

A. M. Mattice, chief engineer of the Allis-Chalmers Company, has returned from his European tour of inspection. While abroad he visited the Hydraulic Machinery Works of Escher Wyss & Co. of Zurich, and arranged important details concerning the manufacture in the United States of their lines of product. He also visited the Nurnberg Gas Engine Works, at Nurnberg, and, at the well known engineering establishment of Willans & Robinson, at Rugby, England, he paid particular attention to the products and methods of manufacture of the Steam Turbine Advisory Syndicate, of which organization Allis-Chalmers Company is the American member. Mr. Mattice had several consultations in London with Mr. Yarrow, the famous torpedo boat builder, on the subject of turbines for marine purposes, and while on the Continent he made, in the Allis-Chalmers interests, a series of exhaustive tests of the Zoelly steam turbine.

John N. Judson, mining engineer, for the past nine years connected with the American Metal Company, Limited, of New York, has resigned to engage in private practice.

HARDWARE.

The report given in another column of the recent meeting of the National Cycle Trade Association is of interest not merely as showing how this association is constituted and what it is attempting to do, but also as illustrating the methods of an organization that aims especially at the protection of the jobbing trade in the matter of prices. To carry out the fundamental principle of the association that jobbers' prices should be extended to jobbers only, a representative committee made up of manufacturers and jobbers was appointed to formulate a list of houses entitled to jobbers' prices. The task assigned to this committee is obviously a difficult and dangerous one, as it is impossible to draw a distinct and definite line between jobbers and retailers. The action of even the best committee, the most judicially minded committee, is certain to be arbitrary, and to bear inequitably on the interests of some who are thereby debarred from the privilege of obtaining jobbers' prices, to which they are as much entitled as some of their competitors to whom it is granted.

The committee, too, has a troublesome problem in connection with the catalogue house trade, in which the goods in the marketing of which the association is concerned figure largely. If the principle that jobbers' prices are to be given to jobbers only is consistently carried out, it will correct one of the inconsistencies of the trade and remove a cause of complaint by retail merchants. It is, indeed, evident that the catalogue houses have not been on the same basis as other retail merchants from the instance cited in the able address of the president of the association, in which a certain catalogue house quoted to consumers a lower price than the price to the trade, all discounts off. It may be intended to correct this condition and to make the recurrence of this impossible. If the association, through its Classification Committee, has the courage to put catalogue houses, in spite of the large volume of their purchases, on the same footing as retail merchants generally, it will give an example of consistency to its cardinal principle and its regard for the interests of retail merchants generally which will greatly commend it to the trade. If, however, its admirable machinery is used to oblige retail merchants, even those of enterprise and large business relations, to purchase their goods from the jobbers, while at the same time it discriminates in favor of the catalogue houses, who are also only retailers, the association can hardly expect to be regarded with unqualified approval by the trade at large. We therefore urge upon the Classification Committee and all in direction of the association that they do not ignore the interests of the great body of retailers, by whom their goods are brought to the attention of the public.

We present in the following pages extracts from an interesting budget of letters which touch upon the question as to the payment of bills in current funds or by local checks. Special weight attaches to these expressions because the letters in question were written by representative hardware manufacturers whose names would add authority to their views and whose practice has great influence in determining trade questions and usages. The fact that a large proportion of these correspondents express themselves as satisfied with payment in local checks, as they are put to no expense in the collection of

them, indicates the change which has taken place since the days when the purchase of drafts on New York or other financial center was considered requisite for the proper settlement of an account. The trade must not overlook the fact that the enterprising house who invited these expressions from the manufacturers recognizes the obligation to pay its bills in such way as to put those from whom it purchases to no expense or inconvenience. The sellers of goods are unquestionably entitled to the full amount of their invoice without being subjected to any charge in connection with the remittance.

A most important meeting is being held in St. Louis as the joint committee of the National Hardware Association, the Southern Hardware Jobbers' Association and the National Retail Hardware Dealers' Association, under the chairmanship of S. Norvell, take up the consideration of the catalogue house question. Brief reference to their coming together is made in the dispatch given in another column. This committee, constituted as it is of able and broad minded merchants of wide experience, may be depended upon to move in the matter deliberately and to avoid ill-advised action which might imperil the success of the movement. The task of determining what is to be done in the premises is not an altogether easy one, and there might be a temptation to act impulsively at the suggestion of some parties in interest, and perhaps to advocate a course which would after all not justify itself by its practical results or be in accordance with correct business principles. That something can be accomplished there is, however, little doubt, and we bespeak for the committee the cordial approval and co-operation of the trade.

Condition of Trade.

The tendency toward a lessening in the demand naturally continues as the end of the first six months of the year draws near and the trade enters upon the period of summer quiet and what is normally as inactive a month, perhaps, as any of the twelve. Manufacturers, in the condition of the market for raw material, are working along conservatively and avoiding the accumulation of unduly heavy stocks. Merchants throughout the country are for the most part well supplied with goods, and their purchases are principally for the completion of their assortments and the meeting of the needs of their customers for goods which they do not regularly carry in stock. The volume of business is accordingly quite moderate. Notwithstanding this, there is not among the trade generally a depressed feeling, and with a fair record for the half year that is past and a fair prospect for the remaining six months, the trade are anticipating a business which, while not likely to be as heavy as that of recent years, should be, on the whole, satisfactory and profitable. The fact of a tendency toward lower prices is generally admitted, but this is coupled with the conviction that there is not likely to be any sudden break or important decline. The gradual recession to a normal level of prices is regarded as, on the whole, healthful, and while the market does not feel the tonic effect of advanced prices it continues in a hopeful condition. It is recognized that the return to normal prices in the raw material and in the finished product is desirable especially in view of our export interests. The course of the market during the past six months tends to put manufacturers in a position in which they will be able more aggressively and with a larger volume of business to take possession of foreign markets. Many of them in the increased atten-

tion they are giving to export trade are manifesting an enterprise which results in part, at least, from the diminished exactions of the home trade. The continuance of prosperity, disturbed, but not after all seriously interfered with, by strikes and labor troubles, coupled with the promising outlook for crops, gives a basis for business, which it is hoped will assume satisfactory proportions. It remains to be seen how much disturbance will be caused by the Presidential canvass, but the opinion is frequently expressed that this is not likely to be as serious as in many previous Presidential years.

Chicago.

(By Telegraph.)

Hardware manufacturers, jobbers and dealers have little to complain of, everything considered. Indeed, many of each class, while echoing the general doleful cry in one breath, will acknowledge in the next that their business for the first half of this year will equal or exceed that of last year. In Presidential year anticipating hard times is a settled American habit, and be the country ever so rich or prosperous, the industrial world thinks it must indulge in its periodical leap year gloom. An added proof of the solid prosperity of the Hardware trade is the fact that manufacturers of a number of lines have felt warranted in advancing prices. Agricultural Wrenches have been advanced 20 per cent.; Hammers, 10 per cent.; Double Pointed Tacks, 10 to 15 per cent.; Hammers and Hatchets, 5 per cent.; Asses' Skin Tapes, 2½ per cent. Summer lines, such as Lawn Mowers and Rakes, Garden Hose and Fixtures, Wire Screens and Screen Doors, are exceptionally active in demand.

NOTES ON PRICES.

Wire Nails.—There is only a moderate demand for Wire Nails, and the trade is beginning to feel the effect of the summer dullness. Stocks are accordingly accumulating, but this tendency will soon be checked by the shutting down of many of the mills for repairs or overhauling. In this condition of things the market has naturally been developing some weakness, and concessions are obtainable on attractive orders. These concessions are not made in the form of an open reduction in the price at mill, but in the delivered price, so that the concession is made in connection with the charge for delivery. No open change is made in the market, quotations being as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days.

Jobbers, carload lots.....	\$1.90
Retailers, carload lots.....	1.95
Retailers, less than carload lots.....	2.05

New York.—The demand for the month has been satisfactory, though somewhat irregular. The volume of business has been somewhat ahead of jobbers' expectations. Quotations are as follows: Single carloads, \$2.10; small lots from store, \$2.20.

Chicago, by Telegraph.—Wire Nails and Smooth and Barbed Wire are weak at official prices, with independent mills scrambling for business at whatever reductions they deem necessary to secure the business. A cut in prices by the leading producer is not impossible, though they have given no sign of it as yet. Some fall orders are being booked, but buyers, as a rule, are chary about tying themselves up unless sellers make suitable price guarantees. However, this condition is rather usual than otherwise at this season. Wire Nails are nominally quoted by the leading producer at the following prices, f.o.b., Chicago: Jobbers, carload lots, \$2.05; retailers, car lots, \$2.10; retailers, less than car lots, \$2.20; though these prices are being shaded by independents and met when necessary. Coated Nails are still quoted at \$1.55 to \$1.60 per keg to dealers or large consumers, delivered, Chicago.

Pittsburgh.—New business in Wire Nails is very light, and already there has been one or two conferences held among leading interests, at which the question of a reduction in prices was discussed, but nothing definite was done. Several of the leading Wire Nail mills will shut

down July 1 for several weeks or longer to make needed repairs. Some unevenness in prices of Wire Nails is reported to a few points of shipment. We quote Wire Nails, \$1.90 in carloads to jobbers, \$1.95 in carloads to retailers, and \$2 to \$2.05 in small lots to retailers, all f.o.b. Pittsburgh, 60 days, or 2 per cent. off for cash in 10 days, plus actual freight to point of delivery.

Cut Nails.—The meeting of the Cut Nail Association was not held last week, but the manufacturers are now in session. No official change in price, it is expected, will be made. Competition by outside mills has caused a shading of association prices where it was necessary to do so to obtain orders. Regular quotations are as follows for Steel and Iron Nails, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Base.
Jobbers, carload lots.....	\$1.75
Jobbers, less than carloads.....	1.80
Retailers, less than carloads.....	1.90

New York.—Less trouble has been experienced by jobbers in getting prompt shipments from mill during the week past, so that stocks are now fully assorted. Demand is commensurate with the requirements of the trade. Regular quotations are as follows: Carloads on dock, \$1.89½; less than carloads on dock, \$1.97½; small lots from store, \$2.05.

Chicago, by Telegraph.—Mills are selling freely on the basis of \$1.65 to \$1.70, Pittsburgh, or \$1.81½ to \$1.86½, Chicago, the higher price being made to consumers and the lower to jobbers as a general thing, although lines are not drawn sharply between the two classes.

Pittsburgh.—It is understood the members of the Cut Nail Association are more disposed to meet competition of outside mills than heretofore. On desirable orders the official price of Cut Nails is being shaded about 5c. a keg, or perhaps more. We quote Steel and Iron Cut Nails at \$1.75 base, in carload lots, and \$1.80 in less than carloads, f.o.b. mill, terms 60 days, less 2 per cent. off in 10 days.

Barb Wire.—About July 1 several of the leading mills will close for inventory and repairs, which is usually done during the period of the least demand. Little new business is being received, and on attractive orders slight concessions are obtainable, being given usually, though not always, in a lowering of the delivered price. Quotations in general are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots.....	\$2.20	\$2.50
Retailers, carload lots.....	2.25	2.55
Retailers, less than carload lots.....	2.35	2.65

Chicago, by Telegraph.—The season is practically closed and but little business being booked. Prices are still nominally as follows: Car lots to jobbers, Painted Wire, \$2.35; Galvanized, \$2.65. To retailers, car lots, Painted, \$2.40; Galvanized, \$2.70. Retailers, less than car lots, Painted, \$2.50; Galvanized, \$2.80. Staples to jobbers, \$2.25 for Plain; \$2.60 for Galvanized. Staples to retailers, 5 cents higher. These prices are not being maintained absolutely.

Pittsburgh.—Demand is very light and reports are still current of a reduction in prices to be made before long. Several leading mills will close about July 1, thus taking advantage of the dull trade to make needed repairs. Prices are fairly well maintained, but occasional concessions are being made. Quotations are as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carloads.....	\$2.20	\$2.50
Retailers, carloads.....	2.25	2.55
Less than carloads.....	2.35	2.65

Smooth Fence Wire.—Demand is light in the way of new business, and many mills will take advantage of this condition to close down for repairs. Prices are not strong, but regular. Quotations continue as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads.....	\$1.80
Retailers, carloads.....	1.85
Less than carloads.....	1.95

The above prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

	6 to 9	10	11	12	12½	13	14	15	16
Annealed....Base.	\$0.05	.10	.15	.25	.35	.45	.55		
Galvanized....	\$0.30	.35	.40	.45	.55	.65	1.05	1.15	

Chicago, by Telegraph.—In the absence of demand the official prices of the leading producer must be considered as nominal, with the understanding that figures considerably lower are being named by independents. These official prices are now being made as follows: Smooth Fence Wire, Nos. 6 to 9, \$1.95 per 100 pounds, in carload lots, to jobbers, f.o.b. Chicago; \$2 per 100 pounds to retailers, and \$2.10 in less than car lots. How much lower prices can be obtained on large desirable specifications is difficult to determine at this writing.

Pittsburgh.—New tonnage is very light and a number of mills are getting ready to close down for repairs. Prices are only fairly firm, being shaded to some points of delivery. We quote as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. discount for cash in 10 days: Plain Wire, \$1.80, base, for Nos. 6 to 9, in carloads to jobbers, and \$1.95 to \$2 in small lots to retailers; Galvanized, 30 cents extra for Nos. 6 to 14.

Agricultural Wrenches.—Some of the competition in Agricultural Wrenches which resulted in the development of low prices has been eliminated, and manufacturers are agreeing upon quotations which are from 10 to 20 per cent. higher than the extreme figures which prevailed a short time ago.

Double Pointed Tacks.—Within the past few months there has been some improvement in the prices current on Double Pointed Tacks, and the market is thus in a somewhat better condition than heretofore. There is, however, a good deal of irregularity in quotations, and prices are referred to by the manufacturers as unpleasantly low.

Stove Boards.—The influence of independent manufacturers is felt in the Stove Board market, as the prices determined upon by the association early in the season have been cut by some of their competitors. This induced some irregularity, and the associated manufacturers are making concessions to meet the prices which have thus been developed.

Cordage.—While there is no quotable change in the price of Rope the market does not have the strength which manufacturers desire. This is accounted for by the absence of a brisk demand. There is, of course, an amount of business being done, but it is done by those who are actively going for it. Quotations on the basis of 7-16-inch diameter and larger are about as follows: Pure Manila, 11 to 11½ cents per pound; other grades of Manila, 10¼ to 10½ cents, according to quality; pure Sisal, 9 cents; mixed Sisal, 7½ to 7¾ cents, according to quality.

Binder Twine.—The occasional naming of ¼ to ¾ cent lower than schedule prices by houses at some points is still reported. The demand for Pure Manila has exceeded the supply, probably because there was a smaller quantity than usual manufactured on account of the larger difference between the price of that and of Sisal and Standard Twine. Stocks of the latter appear to be ample for all requirements, and large enough to prevent delays in filling orders promptly. Most of the leading concerns have made no change in prices and are still quoting the International Harvester Company's schedule as follows:

	Cents per lb.
Sisal	10¼
Standard	10¼
Standard Manila (550 feet)	11¼
Manila (600 feet)	12¼
Pure Manila (650 feet)	13¼
Five-ton lots, ½ cent less; carload lots, ¼ cent less. Kansas City, Minneapolis, Omaha, Council Bluffs, ¼ cent higher; Pacific Coast Points, 1 cent higher. Eastern prices are, as a rule, ¼ cent less.	

Glass.—Many plants have closed down during the week, and it is expected that the number in operation after July 1 will be so small as to have little effect upon

the market. Glass of desirable sizes is reported as scarce in manufacturers' hands. Locally there is almost no demand. Quotations are in the neighborhood of 90 and 20 per cent. discount for small lots.

Oils.—**Linseed Oil.**—A slight advance in the price of Seed has strengthened the market for out of town Oil without advancing quoted prices. This advance in Seed will probably be made the basis of an attempt on the part of crushers to advance the price of Oil. It is supposed that crushers' supply of Oil and Seed is low, and that they will not purchase Seed while Oil remains at the present price. Demand continues for small lots. Quotations are as follows: City Raw, in lots of five barrels or more, 39 cents per gallon; in lots of less than five barrels, 40 cents per gallon; State and Western Raw, 37 to 38 cents per gallon. Boiled Oil, the usual 2 cents advance per gallon over Raw.

Spirits Turpentine.—During the week demand has been light at this point, and prices have been at a close margin over Savannah prices. The buying in the South for export has shown a falling off, while domestic purchases have not been large enough to absorb receipts. A later and heavier demand at the South resulted in a firmer market at Savannah and strengthened the local market, with a slight advance over last week's prices. Quotations are as follows, in this city, according to quantity: Oil barrels, 56 to 56½ cents; machine made barrels, 56½ to 57 cents.

The Catalogue House Conference at St. Louis.

THE Joint Committee on Catalogue House Question, of which S. Norvell of the Norvell-Shapleigh Hardware Company, St. Louis, is chairman, met in the Hotel Jefferson, St. Louis, on Monday, 27th inst. The following gentlemen were present: W. P. Bogardus, Mt. Vernon, Ohio; S. R. Miles, Mason City, Iowa; M. L. Corey, Argos, Ind.; E. M. Bush, Evansville, Ind., and T. Frank Ireland, Belding, Mich., representing the National Retail Hardware Dealers' Association; Samuel A. Bigelow, Boston, Mass.; S. Norvell, St. Louis; T. James Fernley, Philadelphia; W. S. Wright, Omaha, Neb., and R. A. Kirk, St. Paul, Minn., representing the National Hardware Association, and R. M. Dudley, Nashville, Tenn., representing the Southern Hardware Jobbers' Association.

The committee have been in session since Monday morning, and at the time this dispatch is sent (Wednesday noon) have not finished their deliberations. The trade will be interested to learn that substantial progress has been made in formulating plans whereby the catalogue house question will be handled not only intelligently, but aggressively. The committee realize that it has taken years to create the business now enjoyed by the catalogue houses, and that it will require much thought and united action on the part of retailers, jobbers and manufacturers to control the evil resulting from this competition. The committee will continue in session to-day and probably to-morrow, and it will be several days at least before the plans formulated will be in shape to transmit to those interested. In our next issue we will have as full and complete a report of the proceedings as is consistent with the purpose for which the committee was appointed.

A pleasant feature connected with the meeting was a dinner tendered by Mr. Norvell to the visiting delegates at the St. Louis Club. In addition to the delegates, there were present R. W. Shapleigh, A. L. Shapleigh, W. W. Yantis and Taylor Kelly, all of whom are officially connected with the Norvell-Shapleigh Hardware Company.

THIRD ANNUAL CONVENTION OF NATIONAL CYCLE TRADE ASSOCIATION.

THE third annual convention of the National Cycle Trade Association was held in New York June 22-24, inclusive. The first day's proceedings included meetings of the Executive Committee, active members, and joint meeting of jobbers and manufacturers.

President's Address.

Following was the annual address of Charles W. Leng, president of the association:

In opening the third annual meeting of the association I desire to express the thanks which I am sure every member feels to the gentlemen who have helped to make its work successful; to the members of our Executive Committee, who have given their time and thought; to the manufacturers, whose advice has been freely placed at our disposal; to the members generally, whose loyal support has always been forthcoming when needed, and finally, but perhaps most of all, to our able secretary, A. M. Scheffey, whose whole life seems to be enthusiastically given to the furtherance of the association's welfare.

WE HAVE ACCOMPLISHED WONDERFUL RESULTS

during our short existence. It is barely two years since the germ of the association was first conceived in the brains of Messrs. Spalding, Olmstead and Webster, and in the intervals its workings have reached from the Atlantic to the Pacific, and a force has been evolved which is materially helpful to the entire trade. The clearance list has been useful in promoting the sale of dead stock; the registry of trade names has been of daily help; the credit system has been an assistance in avoiding bad debts; the classified lists have helped in defining who was entitled to rank as a jobber. The incessant work of the association has been helpful in holding prices steady. We must admit failure to attain perfection in either of these attempts, but such perfection being rare in any human undertaking, we may congratulate ourselves on what we have accomplished and continue to strive for a nearer approach to the complete success we so much desire.

TRADE REGISTER AND MAILING LIST.

The Trade Register deserves special mention. It is now in its second edition. Alphabetically arranged are the trade names used by our members and by manufacturers, so far as they have been reported to Mr. Scheffey. This register serves primarily the purpose of avoiding unnecessary duplication of trade names. It also gives a long list of useful addresses. There are no charges whatever in connection with the Trade Register, nor is any discrimination made in favor of our members. The cost of printing, which is moderate, is paid from the general funds of the association, and the list is sent gratuitously to all members. The list is doubtless still incomplete, and one of the tasks for the new year will be its further revision. Every one should contribute his assistance toward making this a complete register of the trade. A copy will be gladly furnished by the secretary to any member who will read it with a view to furnishing additional names.

In addition to the Trade Register we now have a mailing list of about 12,000 names of retail dealers. Mr. Scheffey has taken all the names of bicycle dealers from Dun's book, and has now received reports from authorities in all places of 500 inhabitants or over. The mailing lists of several of our members have been placed at his disposal, and the combined result is a total of about 12,000 names. This work will be continued and the list will be gradually enlarged and continually corrected. The list is at the service of our members and manufacturers as a whole or in part. A suitable charge will be made for addressing advertising matter, and it is expected that the revenue derived will help to support the association. The list should not be examined with a view to captious fault finding. Errors will certainly occur, for the compiler of such a list cannot have a personal knowledge of the whole country, but comparing different sources of information, a high degree of accuracy will be obtained, and if each one who discovers an error in the list will

bring it to our attention, we may hope eventually to have an ideal list of the trade.

Proceeding now to consider the plans of the association for the coming year, I will speak of the

CLASSIFIED LISTS.

The first task to which the association directed its energy was the formation of a list of jobbers, and that task is and always will be unfinished. If we could have an ideal list, satisfactory to every one, before us now, it would require revision within a year. This subject has had more study than any other, and has occasioned more anxiety than any other. We are sincerely anxious to do injustice to no one, and yet, between the natural desire of the manufacturer to retain every desirable customer on his books and the equally natural desire of our members to prevent competitors invading their field, we have sometimes had difficulty in reaching a result satisfactory to all concerned.

The discretionary list was devised as an expedient to cover some doubtful cases, and it has worked out fairly well. It, however, leaves an undesirable ambiguity about the position of many names. We now propose to you the appointment of a joint classification committee of 18 members, the vote of 10 being necessary to place any name on the jobbers' list—the committee to be composed of three bicycle manufacturers, three coaster brake manufacturers, three tire manufacturers, seven jobbers, the secretary and the president of this association. The deliberations of this committee after its first meeting, which it is proposed shall be held to-morrow, may be carried on by mail. The list of jobbers announced by this committee may be amended annually, or more frequently if necessary. The immense mass of information already gathered by Mr. Scheffey will be at the service of this committee. Its work should be taken in hand immediately, and a substantially correct list should be ready before contracts for 1905 are negotiated. This matter will be the subject of one of the resolutions to be offered later in the day for your approval.

DATING.

The subject of dating on jobbers' purchases of tires is another matter which merits consideration at your hands at this time. During the season of 1904 some embarrassment has been caused by the withdrawal of the customary dating on tires. Many jobbers have been unwilling to place early orders for stock when such action entailed tying up considerable sums of money. Tire manufacturers have been unwilling to take up stock against prospective orders. Delay in deliveries and consequent dissatisfaction throughout the trade have resulted. To meet this condition our first resolution has been introduced, and it is hoped that it will meet with approval.

CATALOGUE HOUSES.

The mail order firms are one of the subjects of greatest interest to our members. The fundamental principle of the association is reasonable protection for each branch of the trade, including the retail dealer as well as the jobber. When the mail order firms send their catalogues to the consumer, compliance with this principle demands that they should not print the same net trade prices that are quoted to the retail dealer. We have had instances brought before us of Morgan & Wright Tires being quoted to the consumer in this way at \$3.75, when the net trade price, cash discount deducted, is \$3.80. It is gratifying in this particular instance to relate that at the solicitation of Mr. Scheffey Morgan & Wright have caused this particular quotation to be advanced. The association is interested in this matter not only theoretically, but because whatever affects the prosperity of the retail dealer is of vital importance to the jobber and the manufacturer. A resolution is therefore to be introduced at this time dealing with the mail order firms, and it is hoped that it will have unanimous approval.

JOBBERS' PRICES FOR JOBBERS ONLY.

All the matters thus far referred to are, however, subordinate in importance to the main issue upon which this association bears its weight—the dictum that jobbers' prices should be reserved for jobbers only. Upon

this maxim we believe that all should be united, whatever may be their views on dating or catalogue houses or on any other subject which may spring up. The practice of selling merchandise through jobbers and merchants is practically universal, and inevitably carries with it the quotation of a lower price to the jobber to permit of his selling profitably to the merchant.

The keynote of this meeting should be jobbing prices for jobbers only, and if there is any subject upon which we are not all in perfect accord it must stand one side, that the entire strength of the association may be brought to bear upon this issue.

Resolutions.

At the session of jobbers and manufacturers, the following resolutions were unanimously adopted, all of them but the first resolution having been previously approved by a mail vote:

Resolved, In that it is impossible for the jobbing trade to conduct its business without granting a spring dating on Cycle Goods to its customers, that a request be made on the rubber manufacturers that they, in preparing their arrangements for the coming season, provide for a dating not exceeding April 1, 1905, to be granted to the jobbing trade.

Resolved, That it is the sense of this meeting that jobbers' prices should be extended to jobbers only.

Resolved, That a classification committee of 18, composed of three Bicycle manufacturers, three Coaster Brake manufacturers, three Tire manufacturers, seven jobbers and the president and secretary-treasurer of the N. C. T. A., be appointed by the president to formulate a list of those entitled to jobbers' prices, ten votes being necessary to place any name on the list.

Resolved, That it is the sense of this meeting that catalogues, price-lists or other advertising matter reaching the rider should not quote net trade prices.

Another resolution of much importance was unanimously adopted by a committee appointed at the meeting of the active members of the National Cycle Trade Association, at the session of June 23, the following being an excerpt from their report, viz.:

It was, however, unanimously resolved that, whereas, all of our members present desire the sale of certain standard articles under restricted contract prices, that manufacturers be requested to continue the system of restricted contract prices that has been in use during the present season. The committee further report that there was not a dissenting vote within the association on this subject. The members of this association do not ask for the Detroit plan or for any other particular plan, but simply for the continuance of a system of restricted contract prices on standard goods which have heretofore been sold under contract prices, and such other standard lines as the manufacturers thereof may desire to include.

This is in compliance with a request from the manufacturers as to just what was expected of them, and what in the opinion of the jobbers would be satisfactory.

The association was addressed by Charles Z. Tryon of Philadelphia, T. James Fernley, secretary-treasurer of the National Hardware Association, and Fred. C. Gilbert of the Pope Mfg. Company, at the meeting on the 22d.

The entire board of officers were re-elected, with the exception of Charles W. Leng, who resigned as president, his place being filled by the choice of Charles L. Kelsey of the Kelsey Company, Buffalo, N. Y.

The following are the members of the Executive Committee for 1904-1905, viz: Eugene Arnstein, W. L. Beckley, Wm. F. Harrah, A. J. Holmes, C. L. Kelsey, Charles W. Leng, E. J. Lloyd, W. H. Coles, Geo. T. Robie, Wm. Sauter, Wm. Spalding, F. I. Willis, Charles H. Turner, Brace Hayden, and C. J. Schmelzer, all of whom are members of the Board of Directors also, except the last three.

Classification Committee.

To properly prepare an eligible list of the trade entitled to receive jobbers' prices, the following Classification Committee was appointed: H. E. Raymond (B. F. Goodrich Company), Wm. B. Miller (Diamond Rubber Company), H. O. Smith, (G. & J. Tire Company), R. B. Ransom (Consolidated Mfg. Company), Harris Parker, (Eagle Bicycle Company), Col. Geo. Pope (Pope Mfg. Company), W. A. Graham (New Departure Mfg. Com-

pany), W. J. Surre (Corbin Screw Corporation), Ralph D. Webster (Eclipse Machine Company), Geo. T. Robie (Excelsior Supply Company), Brace Hayden (Dunham, Carrigan & Hayden Company), W. F. Harrah (Harrah & Stewart Mfg. Company), A. J. Holmes (Farwell, Ozmun, Kirk & Co.), Geo. Collister (Collister & Sayles), C. L. Elyea (Alexander Elyea Company), Chas. W. Leng (John D. Leng's Son & Co.), Chas. L. Kelsey (the Kelsey Company), and A. M. Scheffey.

Entertainment.

The afternoon and evening of June 23, after the committee meetings, in forenoon and early afternoon, were spent in entertaining the visitors, an Entertainment Committee, consisting of W. A. Graham, A. Seipel and F. E. Castle, having this feature in charge. After a dinner at the Café Martin, a theater party saw "The Yankee Consul" at the Broadway Theater. On the following day there was an excursion to Coney Island. A number of interesting souvenirs were distributed by manufacturers, among which was a watch fob by the New Departure Mfg. Company.

Among the manufacturers present were: Harry C. Lee and A. Seipel, Bridgeport Gun Implement Company; W. A. Graham and C. A. Hoagland of John H. Graham & Co.; F. C. Gilbert of Pope Mfg. Company; R. D. Alliger, Jr., of Brandenburg Bros. & Alliger; Wm. V. Sauter and Chas. Z. Tryon of E. K. Tryon, Jr., & Co.; Ralph D. Webster of Eclipse Machine Company; W. S. Gorton of Standard Welding Company; James B. Pratt of J. D. Leng's Son & Co., and G. H. Barnes of Barnes Tool Company.

DEATH OF ANDREW J. PHILLIPS.

ANDREW J. PHILLIPS, a prominent manufacturer and capitalist of Fenton, Mich., died on the 14th inst., after a lingering illness. Mr. Phillips was born in Hartland, Mich., October 9, 1837. At the age of 20 he worked for a Wood Pump maker, whose machinery he greatly improved. Returning home, he manufactured Wood Pumps on his father's farm for three years, the lumber used being cut from tamarack logs in the swamp and his lathe being operated by horse-power. When he had completed a wagon load of Pumps he started out and disposed of them to the farmers of surrounding territory. Marrying in 1862, he removed to Milford, where he engaged in the foundry business, but soon gave this up to resume the manufacture of Pumps, which he continued until his removal to Fenton in 1869. He was in partnership with his brother for two years, and they enlarged the business to the manufacture of Well Curbs, Milk Safes and general Wood Work. In 1879 he invented the Bent Blade Snow Shovel, and in 1881 he commenced making an Extension Window Screen invented by Judson B. Phillips. Five years later he formed a copartnership with his two sons, W. B. and E. A. Phillips, who had taken an active interest in the business for some time. Judson B. Phillips was admitted to the firm in 1890, and the present stock company of A. J. Phillips Company was formed in 1894, with W. B. Phillips as president and manager. The manufacture of Wood Pumps, with which A. J. Phillips had been prominently identified, was abandoned by the company some years ago, and their principal lines are now Window Screens, Screen Doors and Snow Shovels.

UNION MFG. COMPANY'S PLANE CATALOGUE.

THE UNION MFG. COMPANY, New Britain, Conn., and 103 Chambers street, New York, have just issued illustrated descriptive catalogue No. 4 of the Union Iron and Wood Planes, covering 56 pages. In addition to large and complete lines of Planes, some of which have entirely new and distinctive features, are lines of Spoke Shaves, Circular Planes, and the Union Adjustable Scraper, together with the Iron Single Beader, and new sizes of Block Planes and Spoke Shaves. All Iron handle planes are now furnished with solid mahogany Handles and Knobs, which give the Planes a finely finished appearance.

EXCHANGE ON REMITTANCES.

A well-known house on the Pacific Coast, being perplexed in regard to the best way of treating the matter of exchange in connection with payment of their invoices, recently addressed the following letter to some thirty-five representative Hardware manufacturers and jobbers:

For several months past we have been making remittances with checks on our local bank without adding any exchange, for the reason that some of the firms we buy goods from returned us the amount we had previously added for exchange, stating that they were under no expense whatever and that it was unnecessary for us to include exchange in our remittances.

From investigation we have just made there does not seem to be a universal custom in this matter, as a few of our correspondents find that a check drawn on our local bank is not accepted at par by their bank and that they are under expense for exchange. It is not our intention to put any of our friends under expense of this character, and for this reason we request that you inform us what your experience has been with our remittances; whether you have been under expense for exchange, and, if so, at what rate, so that we may be governed accordingly in future.

The parties to whom the above letter was sent were thoroughly representative houses, including many of the prominent Hardware manufacturers. In view of the diversity of opinion expressed in reply to the inquiry and the fact that the Bankers' Association of the Pacific Coast charge one-eighth of 1 per cent. for Eastern exchange, our correspondents advise us that they are somewhat perplexed as to the course which they should pursue. They desire that the parties from whom they purchase should not be put to the expense of exchange on their remittances, but they do not care to incur the cost and trouble of obtaining drafts if this is unnecessary. They call attention to the fact that the large majority of the replies are to the effect that it is unnecessary to add exchange, and recalling the time when it was considered obligatory to buy New York exchange in making out of town remittances, they express the opinion that it is only a question of time when this practice will be done away with altogether. As reflecting the opinion of leading Eastern houses on this question, the following extracts, which give the substance of the replies, will be found suggestive and interesting:

MANUFACTURERS WHO REQUEST PAYMENT OF EXCHANGE.

WE first present a budget of extracts in which the manufacturers addressed express a decided preference for remittances in current funds or with exchange added:

Have to Pay Exchange.

FROM MANUFACTURERS IN CLEVELAND: We invariably have to pay exchange for collection of checks sent us from extreme Western points, and in making remittances to us it would be a great accommodation if you would remit in the shape of a St. Louis, New York or Chicago draft. Your bank probably does not charge you anything for furnishing you with these drafts and it is an advantage to us.

Banks Insist on Charging Exchange.

FROM NEW YORK STATE MANUFACTURERS: The inclosed notice, one of which we think you will find attached to your invoice, tells the whole story. All our banks here insist on charging us rates named in notice except checks on towns designated. Collection on the check just received from you, you will see by notice, will be 10 cents, making it net us \$61.78. This is a rule of the local Clearing House Association and all our banks are bound to live up to it under a heavy penalty in case of violation of the rule.

Paying Bills Through New York Exchange.

FROM MANUFACTURERS IN CONNECTICUT: The custom seems to be very general with the Western trade to pay bills through New York exchange. It is very uncommon to receive checks drawn on local banks in the West, and our Eastern banks would certainly charge a percentage for collecting such checks unless they were infrequently received or presented by a customer who carried sufficient balance to warrant them in collecting without charge.

Twenty-five Cents Exchange on Local Checks.

FROM AN INDIANA MANUFACTURING CONCERN: Our banks usually charge us 25 cents exchange on your local checks. They haven't any regular rate with us, but charge as above.

Ten Cents a Hundred.

FROM A PACIFIC COAST JOBBING HOUSE: You have regularly added exchange, which was quite in order, inasmuch as our banks charge us for collection on your local checks. It was only a week or so ago that we received a \$5000 remittance from one of our customers in your city, who sent us a local check, and it cost us exactly \$5 to collect, or at the rate of 10 cents a hundred. It is quite true, as you state, that the banks do not make this charge uniformly, and we are unable to explain their reason for making exceptions, but the fact remains nevertheless.

"Payable in N. Y. Exchange."

FROM A NEW YORK MANUFACTURER: The exchange rate on checks payable in your section is $\frac{3}{4}$ of 1 per cent. We believe there is no cost for exchange if check is marked "Payable in N. Y. exchange" and the bank on which check is drawn understands that it is to be settled by New York draft to the full amount.

Twenty-five Cents Per Hundred.

FROM A JOBBING HOUSE IN THE NORTHWEST: Taking this matter up with our banks here, we find that we are charged 25 cents per 100, or any fraction thereof, on checks from your city.

MANUFACTURERS WILLING TO RECEIVE LOCAL CHECKS.

In the following letters the manufacturers express their satisfaction with local checks, having in most cases arrangements with banks by which collection of such exchange entails no expense:

Banks Do Not Charge for Collection.

FROM MANUFACTURERS IN NEW HAMPSHIRE: So far we have not been asked to pay any exchange on our checks. We know that our banks prefer New York exchange, but we do not get it in all cases from customers on the coast and think that our banks have some arrangement for collecting such checks. We know that in one case one of our banks has a Chicago correspondent and all Western remittances are sent through that city.

Drafts Slightly Preferred

FROM LARGE MANUFACTURERS IN NEW YORK CITY: Our banking arrangements are such that it is not necessary for you to make allowance or addition for exchange, but, if convenient to you, would be glad to receive drafts upon New York instead of on your local banks. We do not, however, request this, but simply state that it would be a trifle more convenient to us if a New York draft was sent instead of a local one; but if any trouble or inconvenience to you, we will take care of your remittances without expense if sent to us as heretofore on your local bank.

Banks Are Liberal.

FROM OHIO MANUFACTURERS: It gives us pleasure to state that our banks here are very liberal in this respect, and that there is no discount charged us on same.

Exchange Not Charged.

FROM MANUFACTURERS IN NEW YORK STATE: We are not aware of any exchange being charged on your remittances in our bank.

Never Had to Pay Exchange.

FROM A CONNECTICUT MANUFACTURER: We have never been asked to pay exchange on any checks received from you, and there is not the slightest probability that any such demand will be made upon us.

No Expense, but New York Drafts Preferred.

FROM A MASSACHUSETTS CORPORATION: We are under no expense for exchange on your checks. It would be an accommodation to our bank, however, if you could, without troubling yourselves, send drafts on New York. We do not ask you to do this, however, and your checks on your local bank are always gratefully received.

Pay Exchange, but Are Glad to Do So.

FROM A PROMINENT EASTERN MANUFACTURING HOUSE: Exchange on your checks costs us $\frac{1}{4}$ of 1 per cent. We appreciate your thoughtfulness in this matter, but would say that we are perfectly satisfied to pay the exchange, as we have done recently, inasmuch as we do so for nearly all our customers, and do not see any reason why we should make an exception in your case. So you may continue to send us checks upon your local bank, which will be perfectly satisfactory to us.

An Unnecessary and Unjustifiable Tax.

FROM A LEADING MANUFACTURER IN THE NUTMEG STATE: We have no trouble with any of the remittances that come to us from any part of the country. If there is any exchange it is absorbed in some manner through the local banks in which we carry our deposits. In common with many others in this section we regard this exchange, or tax, as wholly unnecessary and unjustifiable. The New York City banks as a rule have been highly prosperous in their business, making, or at least paying, handsome dividends, and this exchange, or tax, which they are forcing on the country banks seems to be a very greedy piece of business. There has been some very stout and persistent kicking on the part of our country banking people here against this arbitrary rule, but up to the present time it seems to have been of no avail. Our local checks in payment of purchases in New York City are accepted, in nearly every instance, without exchange. Occasionally we are asked to send a New York draft, which we are able to do without expense to ourselves through the courtesy of our local banks here. We trust the time is not far distant when the united and persistent effort of the country banks will have the effect of causing the New York bankers to withdraw from this position, which is making a great deal of unnecessary trouble at the present time.

No Objection to Personal Checks, but Prefer Drafts.

FROM AN ILLINOIS MANUFACTURER: We prefer to receive Chicago or New York exchange, as our banks are under expense for collecting personal checks. We believe you would be able to get from your local banks drafts without the necessity of paying exchange. We have offered no objection to your personal checks, but if it is convenient for you to furnish the drafts, would prefer to receive them. We are unable to state the rate of exchange, but are under the impression that it fluctuates.

Sometimes Pay Exchange, Sometimes Do Not.

FROM A WELL-KNOWN CONCERN IN NEW YORK CITY: Sometimes we have to pay exchange and sometimes not, depending upon the bank in which we make the deposit. It is possible, however, that we might hold out your checks and make the deposit so as not to be charged with this item, if it is of any benefit to you. If you make arrangements with others, of course, it is much simpler for us to have all checks payable in New York exchange.

Do Not Pay Any Exchange.

FROM A LARGE MASSACHUSETTS PLANT: We do not have to pay any exchange on your checks, because, fortunately for this company, two of its officers are interested in the bank through whom we do our banking. We think they have some understanding with one of our Philadelphia exchanges whereby they do not have to pay any exchange.

Put to No Expense in Collecting Checks.

FROM A NEW YORK STATE MANUFACTURER: We do not recollect that our banks have ever charged us exchange on any checks which we have deposited with them. We are, therefore, confident that we have never been put to any expense in collecting your checks and, if you have added exchange, we would ask you to have your bookkeeper figure out what amount you have added in this way and deduct from your next remittance.

Give This Advantage to Their Friends.

FROM A LARGE MANUFACTURING CONCERN IN PENNSYLVANIA: Our experience with your remittances has been the same as with all other out of town remittances—the cost of collection has been absorbed by our different banks, with whom we have placed them for collection, by reason of the line of deposits that we carry with each of them. So long as they are willing to do this we give this advantage to our friends; but, if at any time in the future a change occurs which would require us to pay this cost, then we would expect remittances to be made in accordance with our terms, which are Philadelphia or New York exchange.

No Exchange Charged.

FROM A PROMINENT CONNECTICUT HOUSE: We make our local banks here collect your checks without charging us exchange. This is a little irregular, but in consequence of our keeping a good sized balance with them they do not object. Of course, they would prefer New York drafts, but we do not insist upon it.

Are Satisfied to Take Local Checks.

FROM ANOTHER NEW YORK CITY MANUFACTURER: For some years the banks of this city have charged their depositors collection on out of town checks. If you carry an account in some Eastern bank we should, of course, be glad to have checks on it; but, if not, we are satisfied to take your own local checks rather than to put you to the expense of buying New York exchange.

No Expense Entailed.

FROM A LARGE NEW ENGLAND PLANT: Thus far we have not been obliged to bear any expense on these checks and we hardly think it will be charged in the future. Under the circumstances we shall continue to accept your own checks on your local bank, as we have done in the past.

Local Bank Checks All Right.

FROM MANUFACTURERS IN ILLINOIS: We are placed to no extra expense by receiving your local bank checks. It will, therefore, make little difference to us whether you continue using the local check or take up a New York draft.

No Exchange for Collection.

FROM A PROMINENT HOUSE IN CONNECTICUT: We have suffered no inconvenience from this, as we have an arrangement with our bank whereby they take all checks of this nature without charging exchange for collection. We find that there are a good many of the banks in this vicinity that insist upon exchange, but this does not seem to be universal among our banks; so cause yourself no uneasiness in regard to this exchange.

Bank Prefers New York Exchange, but Makes No Charge

FROM MASSACHUSETTS MANUFACTURERS: Our bank here would very much prefer New York exchange, but under our arrangement with them (providing we keep a certain balance) they do not make us any charge on items of this nature. It is a pleasant departure from the general rule to receive such a letter as you have written us; the general disposition oftentimes is entirely different. As long as our present arrangement continues we shall be glad to have you remit us in any way that suits your pleasure.

Local Checks O. K.

FROM A PROMINENT PHILADELPHIA MANUFACTURER: The bank we do business with does not charge us anything on your checks. Of course, we do not know what the rule is in other cities, or with other banks, but your check on local bank will always be satisfactory settlement with us.

Checks Good for Face Value.

FROM A CONNECTICUT MANUFACTURER: Our local bank charges for exchange, but at the present time we have made arrangements with another bank whereby we do not have to pay any exchange, and as long as this lasts your checks will be accepted at face value.

Never Charged Exchange.

FROM A RHODE ISLAND CONCERN: Our bank has never charged us exchange on any of your checks, so it will not be necessary for you to include exchange in your remittances. If they should call our attention to the matter and want to charge us exchange we will take the matter up with you later.

Bank Does Not Object.

FROM ANOTHER PHILADELPHIA MANUFACTURER: Our bank has not so far made any charge for collecting these

amounts and until they object we are perfectly willing for you to remit with your local checks.

Left Entirely With Their Customers.

FROM MANUFACTURERS IN MICHIGAN: There has been a determined action on the part of banks to make a small charge of about 15 cents for collecting local checks drawn on banks located west of the Mississippi River. They discriminate also against banks which are located in the far South. This action is taken, the banks tell us, on account of the Chicago and New York banks having adopted similar measures, and until a month ago we were obliged to pay 15 cents per \$100 on local checks, from your city for instance. We, however, have recently changed our banking account, and one of the advantages we find lies in the fact that all our local checks are being received for deposit at their par value without any charge for exchange. Pay no attention to the exchange notice printed on our invoices, as we think our business with you is sufficiently large to warrant the acceptance of your check if you prefer to remit in that way, even though it may cost us a trifle occasionally to collect it. We stamp the notice on all our invoices, and there are some of our customers in small towns who comply with the request. We leave it entirely with our customers and do not make any comment in either case, whether included or omitted.

Think It Better to Stand Expense.

FROM A NEW YORK CITY HOUSE: All banks make a charge for collecting out of town checks. It has been our custom to deposit such checks in bank in town where our factory office keeps accounts. While this bank does not make a specific charge on each check, they do require us, in lieu of such charge, to carry a balance with them of \$10,000 without interest; so that we are virtually paying from \$350 to \$400 per year for collection of out of town checks. We have thought it better to stand this expense than to decline accepting other than New York exchange.

Accepted at Par.

FROM ANOTHER CONNECTICUT MANUFACTURER: In regard to adding exchange to your checks would say that it is not necessary for you to do this, as they are accepted at our bank at par.

NEW ENGLAND IRON AND HARDWARE ASSOCIATION.

THE annual meeting of the New England Iron and Hardware Association was held at Young's Hotel, Boston, Tuesday evening, 21st inst., President Harry W. Waite in the chair. After the usual dinner the business of the evening was taken up, which was, first, the reception of reports of officers and committees for the previous year and the election of officers for the coming year. The reports of John T. Boyd, clerk, and of Treasurer Charles H. Breck were read, and the chairmen of the following committees reported: Membership, Heavy Hardware, General Hardware, Woodenware, Saddlery Hardware, and Finance. Treasurer Breck then read a report of the operations of the Bureau of Credit, which is a valuable feature of this association, embracing a law and collection department, which has been very useful to the members in collecting overdue accounts. All of the reports were accepted and placed on file. The affairs of the association are in a flourishing condition and it is constantly widening its influence and entering new departments of activity. The membership, also, is increasing and the general work of the association becoming more efficient. The American Iron & Steel Mfg. Company were elected to membership. The following Board of Directors was elected: C. F. Bragg, George B. Dexter, Charles H. Breck, John T. Boyd, Oscar A. Shephard, William P. Hill, William Chamberlain, Albert C. Ashton, Harry L. Doten, Roswell M. Boutwell. The directors elected C. F. Bragg, Bangor, Me., president; George B. Dexter, Boston, vice-president; Charles H. Breck, Boston, treasurer; John T. Boyd, of Yale & Towne Mfg. Company, Boston, clerk. Retiring President Waite introduced the new president with a few graceful words of welcome, and relinquished the chair to his successor, who responded in an address, from which we make the following extracts:

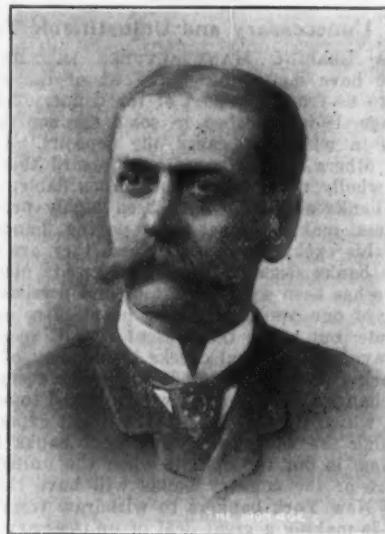
This is entirely unexpected and is a great surprise to me, and it is evident that your ideas and mine upon the necessary qualifications of a president are entirely

different, or you wouldn't have selected me. I thank you, however, and appreciate the compliment. I have always believed in association work and taken a great interest in it, even if all the good things that were promised have not been fully realized.

I am inclined to think that a good deal of our trouble is on account of an attempt to localize trade too much. Each of us would like to have his territory exclusively to himself, but it hardly seems reasonable to expect this. Equal conditions should prevail as far as possible, and then, if any of us lose business which we think should naturally be ours, we may well look to ourselves for the fault.

It seems that we are entering upon a period of low prices and decreased volume of business, which is a natural reaction from the high pressure of the past few years, and I believe there is more need of association work to-day on this account than there has been in the past.

Our attempts to maintain the volume of our business are likely to result in sharp and disastrous competition, which can only be avoided by bearing and forbearing, and keeping in closer touch with each other and having the general good in mind at all times. This will be easier of accomplishment by encouraging the social side of association work, which I believe to be of more importance than many seem to think. By cultivating a better acquaint-



C. F. BRAGG, President.

tance with our competitors we find that, as a rule, they are controlled by as high motives and pursue as honorable methods in business as ourselves, and are not as black as we are inclined to think when judging wholly by the results of competition with them.

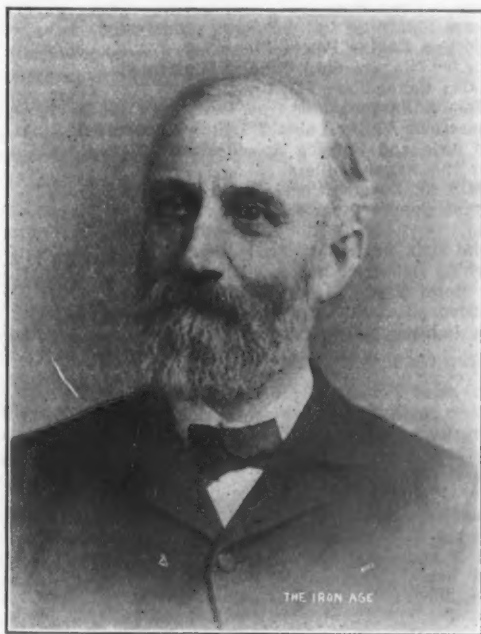
While your Board of Directors is composed of some of your strongest and ablest members, I shall not look to them alone, but shall depend upon the help of all of you for success. I promise to do what I can, and sincerely hope it may not result in my being put out of office with more enthusiasm than I have been put in.

C. F. Bragg, newly elected president of the association, is a member of the well known Heavy Hardware firm of N. H. Bragg & Sons, Bangor, Maine, and in addition to his prominence in mercantile affairs has served the city of Bangor two terms as mayor, and is now occupying other positions of honor and usefulness in that community. His election was a surprise to him and was received by the members with evidences of approval, as he is regarded as exceptionally well qualified for the position.

F. E. MYERS & BRO., Ashland, Ohio, are extensive manufacturers of Force and Lift Pumps, Hay Tools, &c., which, in addition to a large home market, are widely distributed abroad. Wm. C. Barker, their general export manager, with headquarters in the Produce Exchange Building, New York, during a recent visit to the works was accompanied by J. P. Richardson, formerly of Maryland, of J. P. Richardson & Co., Melbourne, Australia, who represents the firm in Australasia. In anticipation of next year's business F. E. Myers & Bro. have just contracted for an edition of 25,000 catalogues, of 368 pages each, at a cost of \$5000.

DEATH OF JOHN TIEBOUT.

JOHAN TIEBOUT, president of W. & J. Tiebout, died at his country home at Manasquan, N. J., June 26, of heart failure, in his seventy-seventh year. Mr. Tiebout had been actively engaged in the business in which his life was spent until very recently, when he had shown signs of impaired health. The business, that of Marine Hardware for ships and yachts, was established by him in 1853 at 197 Lewis street, New York, that section of the city then being the active center of an important ship-building industry. His father, William Tiebout, a retired salt merchant, was admitted to a full partnership in 1860, father and son conducting a prosperous and successful business under the firm name referred to until 1873, when William Tiebout died, the son continuing the business under the old firm name until 1892, when the business was incorporated, at which time William H. Force, J. Edgar Coon and John Tiebout, Jr., a son, were admitted to an interest, they having been 42, 31 and 24 years, re-



JOHN TIEBOUT.

spectively, associated with him, reckoning to the present. This concern was the first to catalogue and classify a line of Marine Hardware designed for ship and boat building, more especially in the form of galvanized iron, at that time but little used, the house being pioneers in this line, having a thorough and practical knowledge of the requirements necessary, through close contact with ship-builders and ship joiners at the old location.

The subject of this sketch was possessed of a very high and fine sense of business honor, coupled with the instincts of a gentleman of the old school, which won for him a high position among all with whom he came in contact, either at home or among his business associates. Mr. Tiebout was a member of the Board of Trade and Transportation, had been a trustee of the Dry Dock Savings Bank for many years, and for two years was its president. He was also for nine years a member of the General Society of Mechanics and Tradesmen and was a prominent member of the Marcy Avenue Baptist Church, in Brooklyn. Mr. Tiebout is survived by a widow, son and three daughters.

W. B. FOX & BRO. AND THE SUPPLY TRADE.

W. B. FOX & BRO., 97 Chambers street, New York, who for over 30 years have bought General Hardware for dealers both in this country and abroad, have organized a new department for buying goods more closely identified with that of Mill, Factory and Railroad Supplies and other kinds of Heavy Hardware. The manager of this department is M. B. Bass, who for nine years

has conducted the supply department of Dunham, Carrigan & Hayden Company in New York. W. B. Fox & Bro. are desirous of receiving manufacturers' catalogues along these lines, especially in Steam Specialties, Packings, Water Works and Plumbers' Supplies, Machine Tools, &c.

Letters from the Trade.

Our readers are invited to discuss in these columns questions of trade interest connected with the manufacture or sale of Hardware. We shall be pleased to have a free expression of opinion on subjects deserving the attention of Hardware merchants and manufacturers.

Iron Cut Nails.

FROM A PENNSYLVANIA MANUFACTURER: We note the article in your issue 16th inst. *in re* Iron Cut Nails. Your correspondent is rather broad in his remarks. Iron Nails made from muck bar are still to be had. As a manufacturer of Iron Nails, would say that some are made entirely out of puddled bar; the larger portion of our product is made from a pile composed of puddled bar top and bottom, say 55 to 60 per cent. of the pile in weight; the balance is either clean Iron scrap or mixed Iron and Steel scrap; the Steel scrap used is very low in carbon, not to exceed ten one-hundredths of 1 per cent., practically a homogeneous Iron. The Nail is stiff and strong; drives well, has the Iron fiber, and owing to the Iron top and bottom of the pile, resists the action of the weather. Iron Nails are not as slightly as Steel, from the nature of the material, nor are they as free from manufacturing defects, but for use where exposed to weather, dampness or such action as will cause rearrangement of crystals through pounding, &c., the value of the Iron Nail far exceeds that of the Steel Nail. For manufacture of cars, about mines or collieries, and like work they should be used to the exclusion of the Steel.

Damages from Railroads.

FROM MANUFACTURERS IN OHIO: There is a subject that we should like to see an expression of views passed on by some of the patrons of *The Iron Age*, and that is the methods of adjusting claims for damages by railroad companies. There seems to be a disposition on the part of numerous railroads to evade responsibility for damages occurring to goods while in their possession, and it seems to us that the railroads cannot legally evade these claims after they accept shipments receipted for in good order and charge the regular tariff rates for carrying same, and under the common law they are responsible for their safe delivery to consignee. We believe this is a subject of more or less interest to shippers of all classes of goods, and we should like to see an expression on the part of shippers as to their views relative to this subject.

Quotations on Postal Cards

FROM A HARDWARE MERCHANT IN NEBRASKA: We have received a postal card from — Manufacturing Company, in which they quote prices on their goods. The average post office has glass front boxes, which enables our customers to read quotations. This card would keep me from sending an order to the company. I do not consider it good business policy to quote prices in this way.

Levying Contributions from Manufacturers.

We have called attention to the unbusinesslike practice of sending to manufacturers with whom the trade have relations requests for contributions in aid of charitable, philanthropic and other local objects. Well-known manufacturers in New England refer to these requests as coming to them from Maine to California, and from the Great Lakes to Florida and Mexico. So numerous have these requests been that they have found it advisable to have a form of letter printed on which the name and address of the applicant is inserted on the typewriter

so that the solicitor would see that it was necessary to reply in this way to the many applications received. We are advised that this method has worked very satisfactorily, as it has been used in answering all requests and no replies have been received. We give this form of letter, thinking that perhaps this method may commend itself to other manufacturers:

We have so many requests to make donations similar to the one just received from you that we find it impossible to answer them all promptly, without neglecting other correspondence, and as business courtesy demands that all communications be answered with reasonable promptness, we find it necessary to have this form letter printed.

We are liberal contributors to all the local organizations, churches, clubs, societies, and for public improvements, &c., and think that this is all that should be expected of us. If we complied with all the demands made on us it would absorb a large part of the profits of our business.

Trusting that your undertaking may prove successful, and regretting our inability to assist you, yet thanking you for the opportunity presented, we beg to remain,

Very truly yours, &c.,

Meeting Catalogue House Prices Not the Only Salvation.

FROM A CONNECTICUT MERCHANT: I am what could be called a small retailer, I suppose, but have been a constant reader of the catalogue house discussion in your columns. It seems to me that every man whether manufacturer, jobber, retailer or consumer will buy every time where he can buy for the least money. Why not accept that fact just as you accept the downhill flow of water. You cannot change it or minimize it to any great extent. Trying to suppress the catalogue house or to put it out of business is utterly vain. If pressure is brought bring it so as to compel equal prices to catalogue houses and to retailer. There is and can be no other way.

Another thing, we smaller men are getting a good deal of well meant, and I have no doubt kindly meant, advice against quoting higher prices than does the catalogue house. Extreme profits, of course, are unwise and ruinous. We don't like, however, to be told that our only salvation is in meeting catalogue prices. A well selected stock of goods, straight payments to your creditors and from your customers, and a businesslike attention to both, with distinct resolve to live within your income and not overbuy, will put many a retailer in better position to keep his trade, even against catalogue competition, than to try selling at cost or on 5 per cent. margin.

I suppose this will be called crude, but it seems to me in line with common sense. My own customers have cared more to be courteously and well served than to pay 2 cents more or less on an article.

An Example of C. H. Competition.

FROM A MERCHANT IN NEW YORK STATE: We have a case of catalogue house competition that we would like to have readers of *The Iron Age* advise as to how we can compete with. A man here had a Chicago catalogue that priced a Gun Sight for his Rifle, made by a prominent Gun manufacturer, at 70 cents by mail. He bought a postal note costing three cents and sent it to Chicago and received the Sight. Later he showed it to his neighbor, who has a Rifle of the same make and size, and he, being our customer, came to us, and we ordered Sight for him from an agent representing a very large Western jobber. In a few days we received a bill for our Gun Sight by mail, \$1 cents. When the agent came in on his next trip we gave him our tale of woe, and he answered simply that he didn't see how they could sell at that price.

THE TOLEDO COOKER COMPANY, Toledo, Ohio, are making an attractive exhibit of their products at the World's Fair, St. Louis, the location of their display being in the Manufactures Building, 21 Fourth street. The company make the Ideal Steam Cooker, Ideal Vapor Bath Cabinets and other specialties.

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BRITISH LETTER.

Offices of *The Iron Age*, HASTINGS HOUSE,
NORFOLK ST., LONDON, W. C., June 18, 1904.

The Week's Hardware Trade.

THE beautiful warm weather we are now having has stimulated the trade in Garden Engines, Syringes, Hose Fittings and similar goods, but beyond that the home trade continues slack. Orders are small, prices are drooping and unemployment in the Hardware industries is increasing. The pinch is, of course, chiefly felt in articles of luxury, such as Jewelry, Silver, Electro Plating, the Gun and Cycle trades, but complaints are rife also of unusual slackness in Brass Goods and General Hardware, including Nails, Chains, Bolts, Screws, Rivets and Builders' Ironmongery. The seamless steel tube branch, of course, shares the languor of the Cycle trade, but some orders are being executed for steel boiler tubes. Wrought iron tubes and fittings are selling very slowly, although prices are low. The Sporting Gun trade is unusually quiet, when it ought to be exceptionally busy, and many skilled hands are out of employment or working short time. In the Hollow Ware branch the demand for enameled goods grows, but the principal business lately has been in Kettles, Galvanized Buckets, Boiler Fittings and Watering Cans—goods that do not bring much profit. Wire workers are busy on Cages, Flower Stands, Baskets and Woven Wire Goods of various descriptions. The japanners and bright Tinware manufacturers are fairly busy, and the makers of Enameled Advertising Plates are still working overtime. Some of their products are going to the United States. I cannot understand why some enterprising American does not tackle this trade. The Edge Tool makers are busy, but almost entirely on overseas account.

The export trade is not doing badly, for reasons which I gave recently, the most backward markets in this category being Germany, the United States and South Africa. Our best foreign markets are India, China, South America, and just recently Australia and New Zealand.

Mention of Australia reminds me that J. Barre Johnston, who last year was president of the Sydney Chamber of Commerce and who is now visiting London, speaks hopefully of the commercial and industrial prospects of the Australian Commonwealth. He says Australia is rapidly recovering from the effects of the long drought. There is a feeling of confidence, and capital is more easily obtainable for commercial enterprises. The last big wheat harvest gave them more wheat for export than had ever been produced in any previous year, and the exports of other produce are growing on a satisfactory scale. One interesting point which Mr. Johnston makes is that Australia has recently gone through the worst period ever experienced without any great financial failures or similar disasters. Mr. Johnston affirms that Australians are anxious to extend their business relations with the mother country, and to purchase British rather than foreign manufactures. But he is opposed to protection, and in his speech as president to the Chamber of Commerce he declared, in dealing with Joseph Chamberlain's schemes, that Australian politicians were not qualified to dispose of the destinies of the people in this matter without a very distinct reference of a clear cut issue to the electorate. His own personal opinion is opposed to any restriction whatever on trade.

The unemployed returns for May are now available and the reading is not precisely exhilarating. The synopsis of unemployment in the Hardware trades is as follows:

Brass Work, Bedstead Making, &c.—Employment generally in the Brass trade is bad, with some short time, and is worse than a month ago and a year ago. In the Bedstead trade it is also quiet, but there is some improvement reported in the cheap goods class.

Nuts, Bolts, Nails, &c.—Employment on Nuts and Bolts is reported as good in the Wolverhampton district, but as only moderate in Birmingham and Smethwick. In Birmingham machine made Rivet makers report employment as fair; Cut and Wire Nail makers as moderate. At Wolverhampton employment is good on Malleable Nails and Protectors.

Tubes.—Employment in this branch is reported as bad, with some short time; it is worse than a month or a year ago.

Locks, Keys and General Hardware.—Both at Wolverhampton and Willenhall employment is reported as bad in the Lock and Key trade, with an increase in the amount of short time worked. Hollow Ware makers at Birmingham report employment as quiet, but improving. Hollow Ware stampers, tinnerns and turners at Wolverhampton, quiet; at Sheffield, slack.

Files, Edge Tools, &c.—Birmingham File cutters and Wolverhampton Filesmithe report employment as bad. In Sheffield employment in the File trade generally is quiet. In Warrington it is fair with Filesmithe. Edge Tool makers are moderately employed at Birmingham; slack at Wolverhampton and Sheffield.

Cutlery, &c.—In Sheffield, employment generally in these trades is slack, and worse than a month ago, the only branches reporting trade as good being sheep Shear makers, benders, grinders and finishers. Jobbing grinders, Saw makers, Pen and Pocket Blade forgers report employment as moderate. Most of the other branches are slack. In the Redditch Needle trade employment is fair for the American and Colonial markets, quiet for the home and Continental. The Fishing Hook trade is quiet. Nottingham Needle makers are very slack.

Stoves, Grates, &c.—Employment generally in this branch has fallen off, and in nearly all centers is slack.

Sheet Metal, &c.—In London Sheet Metal workers generally report employment as bad. In Birmingham Tin Plate workers report it as moderate, Iron Plate workers as good. It is fairly good with Sheet Metal workers on the Tyne and Wear, and good at Exeter; fair at Manchester, Edinburgh and Glasgow; moderate at Leeds and Bristol, and bad elsewhere.

Wire Work.—Locally these trades show some signs of improvement. Wire drawers report employment as very good at Ambergate, fair and improving at Sheffield, and fair at Halifax; slightly improved at Birmingham, bad at Middlesbrough and Warrington. Wire weavers report it as fairly good at London, slightly better at Birmingham and Glasgow; Wire workers as fairly good at Glasgow, quiet at London and Manchester.

American Goods in the Savoy Hotel.

One of the architectural sights of London just now is the new Savoy Hotel, which fronts upon the Strand and quite puts in the shade the Hotel Cecil, which may be described as "little America." In the first place, the hotel has been constructed by the American firm of James Stewart & Co., and is another feather in the cap of this firm. It will be remembered that two years ago they put up the Westinghouse Factory at Manchester in record time. The Yale Lock, with its small and convenient Key, has been fitted to all doors in the new building. Many new and special features have been introduced, so as to give occupants the most up to date improvements. The Suite Entrance Door Latches, which, in the natural course, lock themselves when the door is closed, are so constructed that, should the occupant desire, he can, by pressing a button, enable anyone outside to open the door, thereby avoiding the trouble of having himself to answer it. The sitting room, bed room, and bath room doors are fitted with special Locks, so constructed that, by turning a thumbpiece, the door can be bolted as well as locked. Communicating door Locks are also constructed on this principle, and the doors can be bolted on either side. All casements are fitted with Cremorne Bolts, Flush Bolts, and Casement Stays, so that, when closed, no winds can rattle them. On the Strand side these casements are doubled, to prevent street noises penetrating.

A complete system of mechanical ventilation has been installed by the Sturtevant Engineering Company, whose London address is 147 Queen Victoria street, E. C. Then again, the elevators have been installed by the Otis Elevator Company. The latest and best known Otis car safety devices are employed, rendering accidents practically impossible.

Lastly, the Boilers are of Babcock & Wilcox make.

A Trade Amalgamation.

I am requested by John Whittle & Son, Limited, of Whitehaven, to inform readers of *The Iron Age* that they have taken over the business of J. & J. Braithwaite, of the same town, Joseph Braithwaite becoming a director of the new concern. The firm of J. & J. Braithwaite are known to many laundry engineering firms in America as large buyers of their goods.

American Trade in India.

I have so repeatedly urged upon American exporters the importance of developing trade with India that I now venture to draw the attention of readers of *The Iron Age* to a report prepared by R. F. Paterson, the American

Consul-General at Calcutta. He strongly recommends the establishment of "a museum of samples, or samples of our manufactures, in Calcutta, by a combination of manufacturers, with spacious sample rooms, to be known as 'The American Samples and Sales Room,' where would be exhibited the samples of all of our manufactures adapted to this country, to be under the charge of competent, energetic men, who would be authorized to make sales from samples, and where the goods received might be compared with the samples, if necessary." In this way Mr. Paterson believes American manufacturers would be able to gain the confidence of the native merchants, who are naturally suspicious of foreigners and hesitate to give orders to commercial travelers, who take their samples away with them. He suggests that the museum should comprise among other things, samples of cotton goods of all kinds adapted to the country; Machinery, Hardware and Agricultural Implements; Railway Material; Electrical Fans and other Electrical Goods; Automobiles, for which there is quite a large and growing demand; Vehicles of the types in use; Bicycles; Clocks and Watches, especially the cheaper qualities, and Toys of all kinds. The New York Export & Import Company have had a branch in Calcutta for several years, something on the lines above indicated, and are said to be doing a very satisfactory business. It should not be forgotten, Mr. Paterson observes, that Calcutta is the largest distributing point for manufactured goods in India, and that there are nearly 200,000,000 people tributary to and dependent upon this market for their supplies, both by river and rail. "This great market has been practically ignored by our manufacturers and merchants, but there are evidences that the Pacific Coast, at least, is beginning to make business connections here. A steamship—the first from San Francisco—arrived here a few days ago, and is now loading with jute manufactures and other Indian products for that port, and I am informed that other ships will follow. If our manufacturers and merchants desire this large trade, they must engage actively in competition for it by having traveling salesmen in the field with their samples, or, which would be better, by establishing such sample sale rooms as I have indicated, with traveling salesmen in the field."

AUSTRALIAN NOTES.

FROM A SPECIAL CORRESPONDENT.

THE month of April, just closed, brought us toward the end a slightly improved condition of trade, but country orders are still on the cautious side. There is no disposition to stock up beyond immediate requirements, and the winter trade will be a quiet one. Corrugated Iron and Fencing Wire have been in good demand, the former largely for building storage for the grain held by the farmers. While the general outlook for business is good, there is nothing to justify any hope of an early and pronounced increase in turnover.

SPLATT, WALL & Co. of Perth, Westralia, have started what is a new industry in that State, Steel Stamping works, chiefly for ceiling and decorative work. The Stamped Steel Ceiling has come to stay out here.

HAWKES BROS. of Geelong, Vic., the largest firm of Hardware merchants outside the capital city of Melbourne, celebrated the jubilee of their firm some few weeks ago. The firm's annual picnic is usually a trip to the seaside residence of T. S. Hawkes, the sole proprietor of the firm, and in celebration of the fiftieth anniversary of the firm the employees presented their host with a framed photo of himself, his staff of 36 and the warehouse. Hawkes Bros. have recently started active competition in the wholesale trade by the energy with which they are seeking business from adjoining States.

WIRE NETTING is likely to find an increasing market in Westralia. B'r'er Rabbit believes that "Westward his course of empire holds its way," and the active little nuisance is already making his appearance in force. A 1000-mile fence is being hurried up by the West Australian Government to check the invasion. It will only check. There doesn't seem to be any fence built which will effectually stop the rabbit. When he can't climb

readily, he lies down and dies in such quantities beside the fence that those coming after him can easily do the climbing.

NEW SOUTH WALES held its annual agricultural show at Easter in Sydney. Sydney hotels are always full to overflowing when this show is on. It is quite a national affair. Those of your exporters desirous of opening new lines out here would find a stand at this show the cheapest and most effective advertisement possible.

ALLAN TYE of Tye & Co., Limited, is leaving for your side May 16 on a trip around the world via St. Louis Exhibition. His firm are among the largest house furnishing houses in Australia, and Mr. Tye will combine business with pleasure on his trip.

FEDERAL TARIFF DECISIONS of likely import to American exporters and published during April are:

Machine Tools, Guillotine, Timmen's Squaring Shears, free.

Wood Reels on which Barbed Wire is wound, free.

Coal Cutting Percussion Drills, free.

Hydraulic Roll Presses, 12½ per cent.

Patent Automatic Rim and Felloe Bending Machines, 12½ per cent.

Root Cutters and Pulpers, free.

Spools, Metal, on which Wire is wound, 20 per cent.

Copper Tubes, double, for joining telephone Wires, free.

NEW ZEALAND decisions include:

Malleable Iron, in market lengths, and otherwise, in same state as when it left the rolling mill, free.

Copper Wire, stranded, as electric appliances, 10 per cent.

Machines for making fencing droppers, free.

Stencil Machines for punching letters in cardboard, 20 per cent.

ALLITH MFG. COMPANY IN A NEW PLANT.

THE ALLITH MFG. COMPANY have removed from their old plant at 120 South Green street, Chicago, to the new factory which they have just erected at Taylor street and Forty-third avenue. The new building is 100 x 120 feet, one story in height, with a portion in the center two stories in height, the second story being their office, 20 x 40 feet in dimensions. The plant adjoins the tracks of the Terminal Transfer Company, with a private switch, giving the company access to practically all the railroads entering and leaving Chicago. The building is fireproof throughout, being built of brick, with concrete floors and roof, with Allith round track fire doors installed throughout. Part of the machinery from the old plant is being installed in the new factory, but much of the equipment is entirely new, including a Bulldozer, weighing 37,000 pounds, which was built for them by Williams, White & Co., Moline, Ill. H. C. Smith is president of the company, Andrews Allen, vice-president, and L. H. Mason, secretary. G. W. Hutton, a large stockholder, formerly of Auburn, Ill., has recently been elected treasurer, removing to Chicago to take active part in the business. The company are perfecting new designs and patterns of their Hangers, which will be ready for the trade shortly. They manufacture Door Hangers, Store Ladders, Merchandise Carriers, Fire Door Fixtures and other Hardware specialties. In addition to their plant in Chicago, they have one at Hamilton, Ont. The name Allith was coined at the inception of the company by taking three letters each from the names of Allen and Smith, the founders of the business.

The company have an exhibit of their Round Track Door Hangers, Fire Door Hangers, Merchandise Carriers and Store Ladders in Manufactures Hall, Block 8A, Booth 3, at the World's Fair.

BUTTERFIELD & CO.'S CATALOGUE.

BUTTERFIELD & CO., Derby Line, Vt., and Rock Island, Canada, have just issued a catalogue relating to their line of Stocks and Dies, Solid Screw Plates and Reece's New Screw Plates. The catalogue also contains illustrations of Taps and Dies for all uses, Young's Axle Cutter, tools for engineers' and steam fitters' use. Two pages contain tables of six standards of threads, and one page each is devoted to weights of the goods contained in the catalogue and to an alphabetically arranged index.

PRICE-LISTS, CIRCULARS, &c.

Manufacturers in Hardware and related lines are requested to send us duplicate copies of catalogues, price-lists, &c., one copy for our Catalogue Department in New York and another for our London Office; and at the same time to call our attention to any new goods or additions to their line, of which appropriate mention will be made, besides the brief reference to the catalogue or price-list in this column.

THE NATIONAL CASTER COMPANY, Hamilton, Ohio: Illustrated catalogue and price-list, devoted to a line of Martin Antifriction Furniture and Truck Casters, Rubber Tired Rigid Truck Wheels, Desk Telephone Bracket, and Two-Wheeled Piano Casters.

BOSTON WOVEN HOSE & RUBBER COMPANY, Cambridge, Mass.: Catalogues F, H and L, devoted respectively to Brass Fittings, Mats and Matting, and Insulating and Friction Tapes.

J. STEVENS ARMS & TOOL COMPANY, Chicopee Falls, Mass.: Abridged catalogue of Rifles, Shotgun Cleaners, Pistols, Cleaning Rods, Single and Double Barrel Shotguns.

DOVER STAMPING & MFG. COMPANY, Cambridge, Mass.: Catalogue No. 32, Plain and Retinned Stamped Ware, Japanned and Pieced Tinware, Black and Galvanized Sheet Steel Ware and Kitchen Furnishing Goods, and Genuine Dover Egg Beater. Also, the company's Cook Book, containing 50 receipts.

WHITAKER MFG. COMPANY, 31-33 North Canal street, Chicago, Ill.: Catalogue No. 5, devoted to Hardware and Agricultural Specialties, Factory and Railway Supplies.

ELLIOTT MFG. COMPANY, Warren, Ill.: 1904 catalogue, containing some additions to and a few changes in the company's line of Patent Antirusting Tinware.

ENTERPRISE ENAMEL COMPANY, Bellaire, Ohio: Limonite Enameled Ware, new brown, heavily flecked with white. Illustrated catalogue contains net prices per dozen, packed and delivered, or with liberal allowances for freight.

KANSAS CITY HAY PRESS COMPANY, Kansas City, Mo.: Balanced Engine for gas or gasoline, Balanced Locomotive, Centrifugal Pumps, Stump Puller, Feed Grinder, Hay Rake, Hay Stacker, Wagon and Stock Scale, Dormant Scale and Hay Press.

THE EDWARDS MFG. COMPANY, Cincinnati, Ohio: General catalogue of their Sheet Metal Building Material. The catalogue contains 132 large pages and is divided into four sections. Section A covers Eave Trough and Conductor Pipe, Roof and Box Gutters, Elbows and Shoes, Eave Trough Hangers, Rain Water Cut Offs and a large variety of goods used by the roofer. Section B is devoted to Steel and Iron Roofing, Corrugated Iron, &c. Section C is given up to the Cornice department, while Section D represents the ornamental department of the company's manufactures.

THE LOCKWOOD MFG. COMPANY, South Norwalk, Conn.: Supplement to their catalogue of Builders' Hardware. The new designs cover Door Sets, Store Door Cylinder Sets, Cabinet and Screen Door Latches, Rabbeted Store Door and Front Door Cylinder Sets, Hall Stand Hooks, Universal Sash Locks, Toilet Door Latches and a considerable miscellaneous line. The company have also issued a new price-list of 52 pages.

THE CHALLENGE CUTLERY CORPORATION'S EXHIBIT AT BRIDGEPORT.

AMONG the manufacturers who participated in the entertainment of the Honorary Board of Filipino Commissioners to the Louisiana Purchase Exposition, under the auspices of the Bridgeport Board of Trade, at Bridgeport, Conn., June 18 and 19, to which allusion was made in our last issue, was the Challenge Cutlery Corporation, whose New York salesrooms are with Wiebusch & Hilger, 9-15 Murray street. The company had a large and very attractive exhibit of Pocket Knives and Razors, which was shown to be one of the large industries of that enterprising manufacturing city.

NEW YORK BELTING & PACKING COMPANY'S NEW STORE.

THE NEW YORK BELTING & PACKING COMPANY have taken possession of their commodious new quarters at 91-93 Chambers street, extending entirely through the block to 73-75 Reade street, giving them the street floor and two basements with a frontage of 50 feet on both streets and depth of 150 feet. The premises have been thoroughly renovated, the street floor particularly so. The wood work is in polished quartered oak, natural finish. This business was established in 1846, and for the last eight years has been conducted at 25 Park place, but with inadequate room to properly display samples of the large lines of goods they make. Previous to that time they were in Park row, opposite the Post Office. They manufacture all kinds of Mechanical Rubber Goods, Belting, Packing, Hose and many kinds of Rubber Specialties. They also make Interlocking Rubber Tiling and Vulcanite Emery Wheels. A feature of the arrangement of offices and showrooms is a specially fitted room for the convenience of friends and customers, to the use of which a cordial invitation is extended. This department will be fully equipped with corresponding facilities, telephone service, &c., for customers visiting the city.

DEATH OF C. S. MERSICK.

CHARLES SMITH MERSICK, head of the Iron, Steel and Hardware house of C. S. Mersick & Co., New Haven, Conn., died at his home in that city, on the 24th inst., from heart disease. He was 63 years of age. Mr. Mersick was born in New York, December 18, 1840. He was connected with the Hardware and Iron and Steel business from his early manhood, most of the time in New Haven. He first became associated with the old firm of English & Atwater, and afterward went into business with Nelson Hotchkiss, under the firm name of Hotchkiss & Mersick. Later the firm became C. S. Mersick & Co. Mr. Mersick was president of the Merchants' National Bank of New Haven from 1889 to the time of his death. He was active in public affairs, and from 1899 to 1901 he was State Treasurer of Connecticut. He was a member of the Quinnipiac and Union League clubs of New Haven, and of various other organizations. He was an active member of the Center Church, and for many years served on the Church Committee. He married Ellen Louisa English, a daughter of George D. English, in 1865. Mrs. Mersick died in 1894. One daughter, Mary E. Mersick, survives him.

REQUESTS FOR CATALOGUES, &c.

The trade are given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses:

FROM **H. KLAPPENBACH**, Eagle Pass, Texas, who is soon intending to open up in the wholesale commission and manufacturers' agency business in Guadalajara, Mexico. Mr. Klappenbach has had 25 years' active experience with Mexican trade, and intimates that all catalogues and price-lists will be carefully preserved, even if he does not succeed in arranging for agency for the parties.

FROM **W. M. SMELSER**, Rockville, Neb., who is a dealer in Shelf Hardware, Paints and Oils, Stoves, Harness, Seeds, Sporting Goods, &c.

FROM **J. J. BALLENGER & SON**, Seneca, S. C., who have succeeded the Seneca Hardware Company, dealers in Hardware, Stoves, House Furnishings, Sporting Goods, &c.

FROM **JESSUP & LYONS**, Clay Center, Neb., who have bought the Hardware, Stove and Furniture business formerly conducted by L. C. Kurtz.

Union X Planes, Locking Lever Adjustment.

Union Mfg. Company, New Britain, Conn., and 103 Chambers street, New York, have just brought out the Union X planes, with locking lever adjustment, here illustrated, made in both iron and wood body styles. Fig. 1 represents the iron body type in a jack plane, Fig. 2 in sectional view illustrating the general principles governing the working parts. The long used movable frog has been discarded, the cutter seat being made a part of the

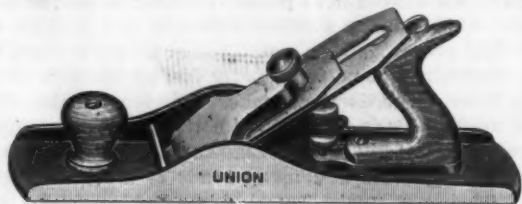


Fig. 1.—No. X5 Union Iron Body Jack Plane.

plane body. This insures a firm seat for the cutter, which, it is asserted, cannot become loosened or displaced under any conditions, thus eliminating the annoyance caused by a loosened frog. The solid seat, in combination

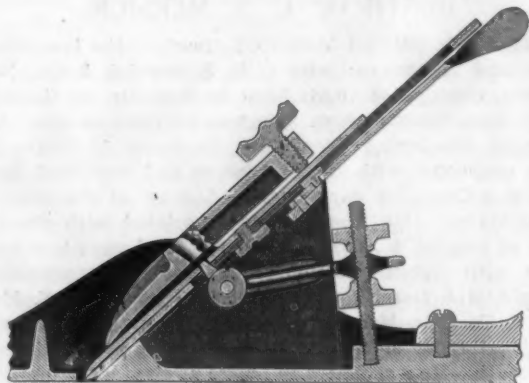


Fig. 2.—Sectional View of Iron Body Plane.

with the extra heavy cutters used in all their planes, provides a firm and stiff cutting edge. The cutter is raised or lowered by means of a lever which acts on the cutter direct, and is both positive and quick. There is no lost motion, and the cutter is sensitive to any movement of the lever. The locking feature of the adjustment is reg-

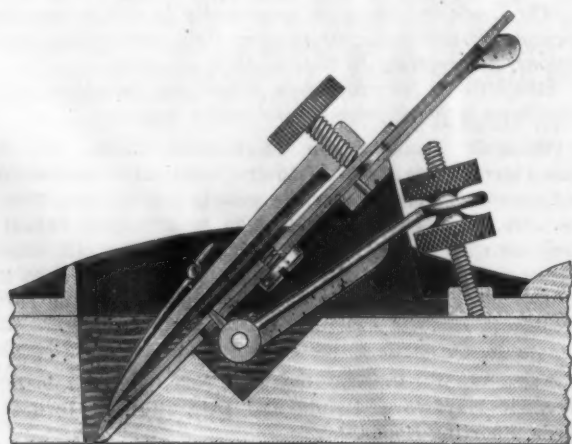


Fig. 3.—Sectional View of Wood Bottom Plane, Locking Lever Adjustment.

ulated by two brass nuts placed at the outer end of the lever, which hold it securely. After the cutter is set in any desired position the lever is solidly clamped by the two nuts, making it impossible for the cutter to be displaced without purposely loosening one of the nuts. The

company call particular attention to the importance of this feature, as the workman can rely on the certainty of the cutter remaining in any position in which it has been set. Still another strong point alluded to is the protection to the cutter easily effected when the plane is laid aside or put in tool chest with other tools likely to injure the plane iron. By loosening the lower nut the lever may be lowered, thus raising the cutter within the body of the plane. The upper nut remaining in the same place, the cutter is brought to the identical position as when last used by merely raising the lever until it strikes the upper nut, and again locking by the lower nut. The cutter is firmly held in place by an iron cap, which slides under the lugs in the side walls, the proper leverage being obtained by a brass screw in its upper end, thereby securing absolute rigidity of the cutter. The company claim

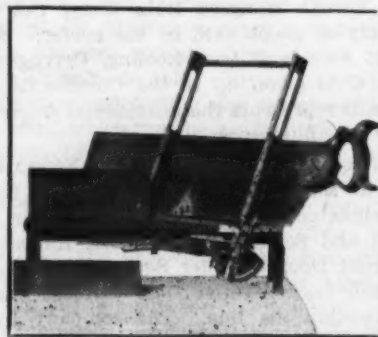


Fig. 4.—Steel Faced Wood Plane.

for the construction of these planes simplicity and ease of adjustment and strength and stability enough to successfully withstand any proper tests. This form of adjustment is also equally suited to the wood bottom planes, as seen in Fig. 3. The planes described above are distinguished by the initial X, to differentiate them from the regular line previously made, and which they still continue to manufacture. Another new style of plane made by them and described in their plane catalogue No. 4, just issued, is the steel faced wood plane shown in Fig. 4, the feature of which is the freedom from rapid and uneven wear incidental to much used wood bottom planes, at the same time affording a smooth and polished surface at all times. This style of plane can be furnished in both styles of adjustment.

The Bolig Patent Miter Box.

The Bolig Company, Los Angeles, Cal., are offering the miter box shown herewith. It is adjustable at any angle, 45 degrees or less radially, and at the same time



The Bolig Patent Miter Box.

to a vertical inclination of 45 degrees or less. It will cut all miter joints, bevel joints and angles in opposition at any degree within said limit. The manufacturers claim that the inclination of the saw at the same time with the vertical swing of the saw renders it possible to make on this miter box 15,000 more cuts than is usual. The box is referred to as convenient, as saving time and labor, and is warranted to be true and accurate. The mechanism of the box is all open and visible and of the simplest kind. The capacity of the box at right angles is 9½ inches, and at 45 degrees miter 6¾ inches. The boxes are furnished without saws or with 26, 28 or 28-inch saws.

Zinkets.

In Fig. 1 of the accompanying cuts is shown the front, side and top view of a Bessemer steel plate, electroplated with zinc, cut and bent in the form of egg holders, and known as zinkets. In Fig. 2 an illustration is given of

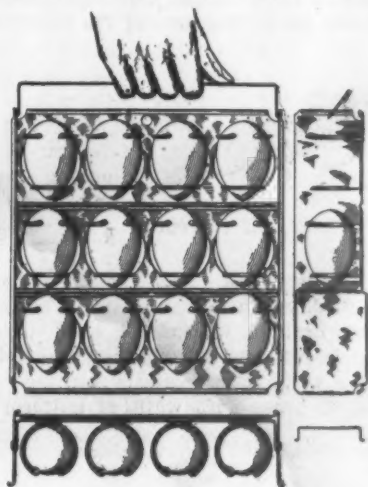


Fig. 1.—Front, Side and Top View of a Zinket.

the manner in which zinkets are packed in boxes. The design of the invention is to promote cleanliness, economy and dispatch in the handling of eggs, as well as identifying reliable goods. The dimensions of the zinket are $7\frac{1}{2}$ inches square by $1\frac{1}{4}$ inches deep, so that four of them slid together form a cube. Eggs placed in them are in perfect alignment for marking and dating. Each egg is held by spring clips opposite an opening in the body of the article, giving a desirable arrangement for candling or testing with a light. The makers remark that the device is better

Iron Age Horse Hoe and Cultivator No. 6.

The horse hoe and cultivator herewith illustrated is offered by the Bateman Mfg. Company, Grenloch, N. J. While the tool itself is not entirely new to the trade, a new feature has been added in the application of a depth regulator. By means of this device the depth of running of the cultivator may be quickly changed by adjusting the forward lever shown. The depth regulator and the wheel working in unison keep the tool balanced, while, if desired, the comparative depth of either may easily be

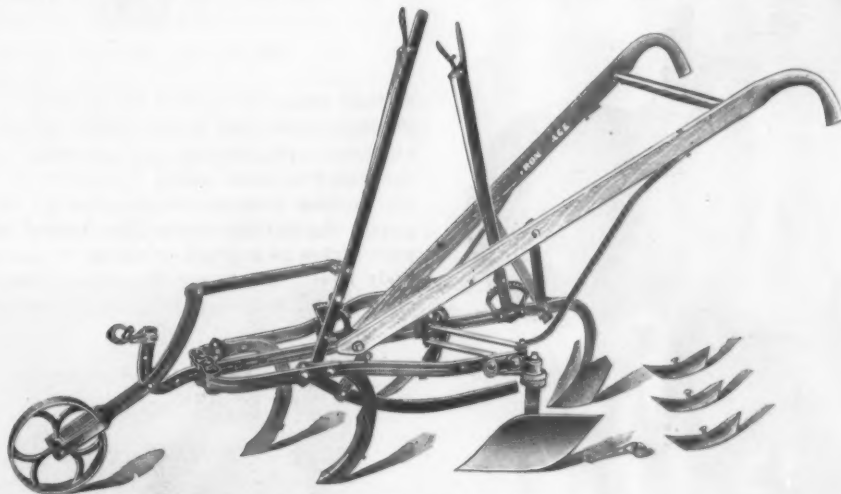


Fig. 2.—A 30-Dozen Box.

made. Another feature of the regulator is that the tool may be entirely raised from the ground by it, and thus easily taken to and from the field.

Electricians' Insulated Screw Driver.

The Ducharmes & Co., Shelburne Falls, Mass., are offering the insulated screw driver for electricians' use, as shown in the accompanying cut. It is referred to as being

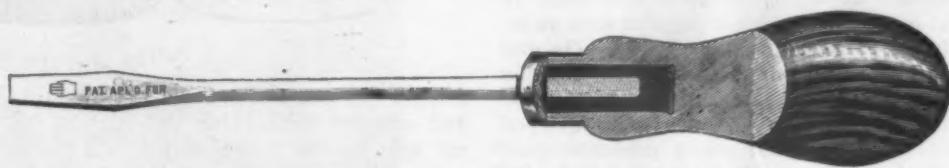


Iron Age Horse Hoe and Cultivator No. 6.

than a basket for gathering eggs; better than the hand for holding eggs when cleaning them; better than paste-board fillers for shipping eggs; better than a mathematician for counting them; better than pans or dishes for putting eggs into a refrigerator; better than a professional tester for testing them, as well as a desirable arrangement for holding eggs while boiling them. Four sizes of boxes for holding zinkets are made for the ordi-

perfectly insulated and especially adapted to electrical work. The company replace free of charge any tool with their trade-mark (Hand D) stamped on it that breaks, bends or that is not satisfactory in all respects.

THE practice of assigning wages to credit merchants and money lenders has become so prevalent at Hartford,



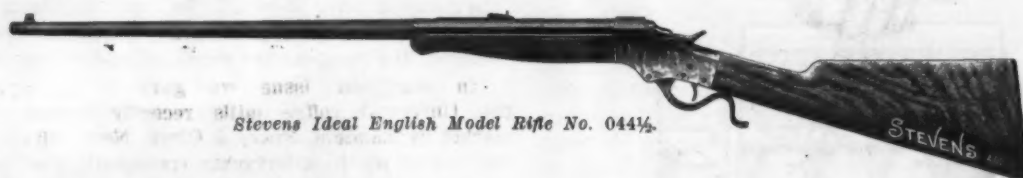
Electricians' Insulated Screw Driver.

nary trade, holding 6, 10, 20 and 30 dozen eggs. These goods are being introduced through the hardware trade by the manufacturers, Decker & Co., Connell Building, Scranton, Pa.

Conn., that a number of manufacturing concerns have notified their employees that this sort of thing must stop. Similar action has been taken by manufacturers in some other parts of the country.

Stevens Ideal English Model Rifle No 044 1-2.

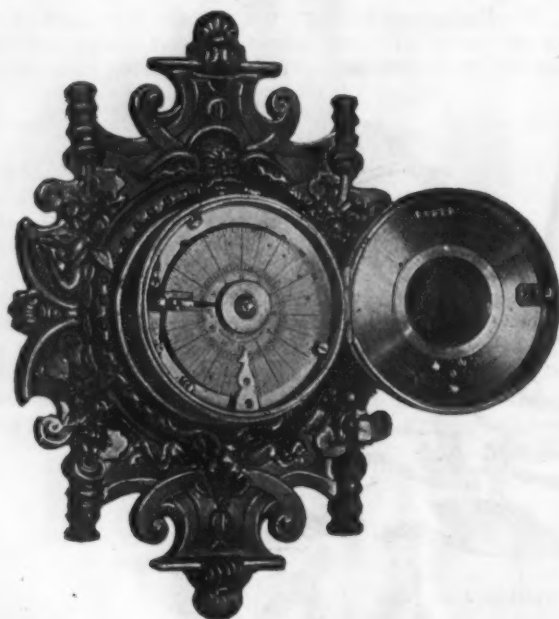
The accompanying cut represents a rifle which J. Stevens Arms & Tool Company, Chicopee Falls, Mass., expect to have ready for market about July 1. It is on similar lines to the company's regular No. 44½ Ideal rifle, with drop forged frame and new sliding breech block action, but has a tapered barrel, military pattern,



rubber shotgun butt, and is recommended as especially desirable for field and hunting purposes. In weight the rim fire will be 5¼ pounds, just between the Favorite and Ideal No. 44. It will be made for all standard sizes of ammunition, fitted with bead front sight and sporting rear.

Stationary Watchman's Time Detector.

Nanz & Co., 127 Duane street, New York, have just supplemented their line of watchmen's clocks and time detectors by the addition of the Stationary Watchman's Time Detector here illustrated. This safeguard has been devised more especially for private residences in the country, stables, small manufacturing establishments, banks or stores where one or two stations will be sufficient; also for railroad purposes, such as keep-

*Improved Stationary Watchman's Time Detector.*

ing tab on track walkers, flagmen and watchmen. It will likewise keep a night fireman awake, thus insuring adequate water in the boiler and a proper steam pressure. It is the finest lever movement they make, has 11 jewels and is a guaranteed accurate time keeper, being constructed equal to their finest portable watch movement. In operation a dial is revolved, which is supplied with an independent spring to prevent turning backward. The dial is divided into hours and minutes, so that when the watchman touches the button it records the fact at the exact time he made the round. The watch is also equipped with a safety lock attachment, which prevents opening without detection. The watch can be furnished with daily or weekly dials. The ornamental back plate, of cast iron, is bronzed and gilded, the watch itself being contained in a solid polished brass case. The extreme dimensions of plate are 9½ x 6½ inches, the watch case being 3½ x 1½ inches. Where individuals are using

other kinds of watches and wish to adopt this system, the concern will make a liberal allowance for old detectors.

The Perfection Plumb Bob.

The Tower & Lyon Company, 95 Chambers street, New York, have just put on the market the Perfection Plumb

Bob herewith illustrated. Fig. 1 shows it complete except for the cord, which is furnished and made expressly for it, being braided instead of hard twisted. The braided cord is soft and flexible, and the weight hangs plumb at once without unnecessary turning. The outer shell is of spun brass with walls of uniform thickness,

*Fig. 1.—The Perfection Plumb Bob.*

so that when the interior filling of lead is run in an even density is obtained and a proper equilibrium insured. A steel rod with polished and hardened steel point extends through the mass and is threaded at the top to receive the knurled brass screw cap, through the center of which passes the braided cord. The beaded edge at the widest part serves as a guard or fender to prevent injury to the body itself. There are five sizes, numbered 11 to 15 inclusive, and weighing ½, ¾, 1½, 2¼ and 3½ pounds respec-

*Fig. 2.—Method of Putting Up Plumb Bob.*

tively. The plumb bob is finished in both polished brass and nicked brass, and all are put up in individual light colored turned circular wood boxes with screw tops, as seen in Fig. 2, neatly labeled. This refinement of packing serves to make a good appearance on the merchant's shelves, keeps the article fresh and salable until received by the customer, and provides a handy, practical container for the tool when not in use, preserving it from injury in a tool chest.

Wagner Building Bracket Hanger.

A simple device offered to carpenters, contractors and the trade generally that is intended to do away with the necessity of building scaffolding is illustrated in

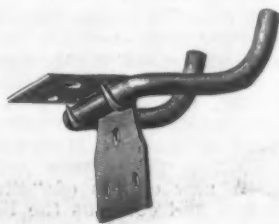


Fig. 1.—Wagner Building Bracket Hanger.

detail in Fig. 1. Fig. 2 illustrates the method of attaching the hanger to the building. A hole is bored in the siding or casing, running diagonally upward into the joist. By the illustration it will be seen that the fulcrum or pivotal

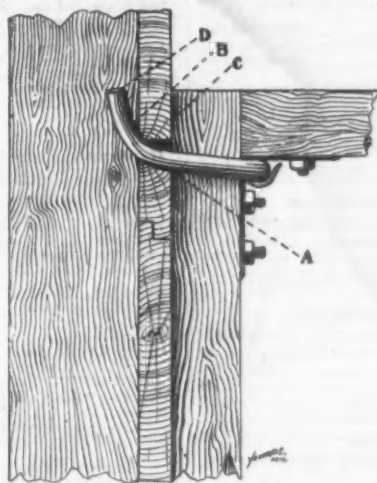


Fig. 2.—Method of Attaching Bracket to Building.

point is at A and that the stress at B and D is diagonally upward, making it impossible for the hook to withdraw from position when weight is placed on it. The same diagram shows that the scaffold bracket is held firmly against the side of the building by the hanger. The



Fig. 3.—Scaffold Bracket in Position.

double hooks prevent the bracket from turning sideways, as well as giving added strength. The hooks are made

of $\frac{1}{2}$ -inch steel, and the plate which sits in the angle of the bracket is made of $\frac{1}{4}$ x 3 inch steel. Fig. 3 shows a scaffold bracket in position. The ends of the hooks are pushed into the holes and the bracket is lowered as far as possible. To remove the bracket it is only necessary to push upward on it. This bracket hanger is patented and manufactured by the Wagner Manufacturing Company, Cedar Falls, Iowa.

Universal Coffee Mills.

In our last issue we gave a description of the Universal coffee mills recently placed on the market by Landers, Frary & Clark, New Britain, Conn., but, owing to an unfortunate transposition of the matter, several points in regard to the construction were not made clear. We accordingly reproduce the description in its correct form. The mills are made of sheet steel through-



Fig. 1.—Universal Coffee Mill No. 100.

out, black enamel finish, and nicely ornamented. They are strong and made in a durable manner. The grinders are the same in both mills, are made of chilled malleable iron, and are warranted equal to steel by the manufacturers. They are of a new design, and their superiority is emphasized by the makers. The No. 100 will grind as much coffee as No. 110, while the No. 110 is made large so that the canister will hold 1 pound of coffee. The adjustment of the mills is effected by loosening the nut that



Fig. 2.—Universal Coffee Mill No. 110.

comes up through the handle and then turning the nickel plated nut to the right to loosen it, to the left to tighten it. When it is in the desired position it is held in place by screwing down the nut which goes through the handle. In this way a very positive and effective adjustment is obtained, which, it is remarked, cannot possibly vary after it has once been set.

Current Hardware Prices.

REVISED JUNE 28, 1904

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer, are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33% @ 33% & 10% signifies that the

price of the goods in question ranges from 33%, per cent. discount to 33%, and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also *THE IRON AGE DIRECTORY*, issued May, 1904, which gives a classified list of the products of our advertisers and thus serves as a *DIRECTORY* of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Abrasives—

Adamant in Carloads:
 Crystal..... \$ ton \$90@100
 Grain..... \$ ton \$120@140
 See also Emery.

Adjusters, Blind—

Domestic, \$ doz. \$3.00..... \$5.25
 North's..... \$ doz. \$3.00..... \$5.25
 Zimmerman's—See Fasteners, Blind.

Window Stop—

Ives' Patent..... \$ doz. \$3.00..... \$5.25
 Taplin's Perfection..... \$ doz. \$3.00..... \$5.25

Ammunition—See Caps, Cartridges, Shells, &c.

Anvils—American—

Armand Hammer, Wrought \$ 8 1/2 @ 8 3/4
 Eagle Anvils..... \$ 7 1/2 @ 7 3/4
 Hay-Budden, Wrought..... \$ 8 1/2 @ 8 3/4
 Horseshoe brand, Wrought..... \$ 8 1/2 @ 8 3/4
 Treadwell..... \$ 8 1/2 @ 8 3/4

Imported—

Peter Wright & Sons..... \$ 8 1/2 @ 8 3/4

Anvil, Vise and Drill—

Millers Falls Co., \$18.00..... \$15.10

Apple Parers—See Parers, Apple, &c.

Aprons, Blacksmiths'—

Hull Bros. Co., \$10.00..... \$8.50
 Livingston Nail Co., \$10.00..... \$8.50

Augers and Bits—

Com. Double Spur..... \$ 75 @ 75 1/2
 Boring Machine Augers..... \$ 68 @ 70
 Car Bits, 12-in. twist..... \$ 60 @ 60 1/2
 Jennings' Pattern..... \$ 60 @ 60 1/2
 Ford's Auger and Car Bits..... \$ 60 @ 60 1/2
 Forster Pat. Auger Bits..... \$ 60 @ 60 1/2
 C. E. Jennings & Co.,
 No. 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, 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3512, 3514, 3516, 3518, 3520, 3522, 3524, 3526, 3528, 3530, 3532, 3534, 3536, 3538, 3540, 3542, 3544, 3546, 3548, 3550, 3552, 3554, 3556, 3558, 3560, 3562, 3564, 3566, 3568, 3570, 3572, 3574, 3576, 3578, 3580, 3582, 3584, 3586, 3588, 3590, 3592, 3594, 3596, 3598, 3600, 3602, 3604, 3606, 3608, 3610, 3612, 3614, 3616, 3618, 3620, 3622, 3624, 3626, 3628, 3630, 3632, 3634, 3636, 3638, 3640, 3642, 3

Can Openers—See Openers, Can

Cans, Milk—
 Illinois Pattern, \$1.50 2.00 2.25 each.
 Iowa Pattern, 2.35 2.50 each.
 New York Pattern, 1.65 2.40 2.75 each.
 Baltimore Pattern, 1.80 2.00 each.

Cans, Oil—

Buffalo Family Oil Cans:
 3 5 10 gal.
 \$48.00 64.20 129.00 gro., net

Caps—Percussion—

Eley's E. B. 60c
 G. D. per M \$4.50
 F. J. per M \$4.50
 G. E. per M \$5.00
 Mueket. per M \$5.00

Primers—

Berdan Primers, \$3.00 per M. \$0.25
 B. L. Caps (Sturtevant Shell). \$0.00 per M
 All other primers per M \$1.50 to \$1.60

Cartridges—

Blank Cartridges:
 28 O. F. \$5.50. 10¢55
 28 C. F. \$7.00. 10¢55
 28 cal. Rim. \$1.50. 10¢55
 33 cal. Rim. \$2.75. 10¢55
 B. B. Caps, Con. Ball Sngd. \$1.90
 B. B. Caps, Round Ball. \$1.49
 Central Fire. 25¢
 Target and Sporting Rifle. 15¢55
 Primed Shells and Bullets. 15¢10
 Rim Fire Sporting. 50¢
 Rim Fire Military. 15¢55

Cases, Show—

Sun, No. 102. Silent Salesman, 6 ft., \$25.00

Castors—

Bed. 70¢ to 70¢10
 Plate. 60¢55 to 60¢10
 Philadelphia. 75¢ to 75¢55
 Boss. 70¢ to 70¢10
 Ross Anti-Friction. 70¢ to 70¢10
 Gem (Roller Bearing). 75¢55
 Martin's Patent (Phonix). 45¢
 Smith & Hemenway Co. 35¢55
 Standard Ball Bearing. 45¢
 Tucker's Patent, low list. 30¢
 Yale (Double Wheel) low list. 45¢

Cattle Leaders—

See Leaders, Cattle.

Chain, Coil—

American Coil, Jobbers' Shipments:
 3-16 1/4 5-16 3/8 7-16 1/2 9-16 3/4
 8-00 5-30 4-15 3-75 3-60 3-50 3-45
 3-3 3-25 3-50 3-15 per 100 lb.
 German Coil. 60¢10 to 10¢10

Halters and Ties—

Halter Chains. 60¢10 to 60¢10
 German Pattern Halter Chains, list
 July 24, '97. 60¢10 to 10¢10
 Cow Ties. 60¢ to 60¢10

Trace, Wagon, &c.—

Traces, Western Standard: 100 pair
 6-6-3, Straight, with ring. \$23.50
 6-6-2, Straight, with ring. \$21.50
 6-6-1, Straight, with ring. \$20.00
 6-6-0, Straight, with ring. \$18.50
 Add 2¢ per pair for Hooks.
 Total Traces 2¢ per pair higher than
 Straight Link.

Trace, Wagon and Fancy Chains.

60¢55 to 60¢10 to 10¢55

Miscellaneous—

Jack Chain, list July 10, '93:
 Iron. 60¢10 to 60¢10 to 10¢55
 Brass. 60¢10 to 60¢10 to 10¢10
 Safety Chain. 75¢ to 75¢10 to 10¢55
 Gal. Pump Chain. 1/4 1/2 3/4
 Covert Mfg. Co.
 Breast. 40¢25
 Halter. 40¢25
 Heel. 40¢25
 Rein. 40¢25
 Stallion. 40¢25
 Covert Saddle Works
 Breast. 70¢
 Halter. 70¢
 Hold Back. 70¢
 Rein. 70¢
 Onelda Community
 Am. Coll and Halters. 40¢ to 40¢55
 Am. Coll and Halters. 45¢ to 50¢
 Eureka Coll and Halters. 45¢ to 50¢55
 Niagara Coll and Halters. 45¢ to 50¢55
 Niagara Wire Dog Chains. 45¢ to 50¢55
 Wire Goods Co.
 Dog Chain. 70¢ to 10¢
 Universal Dog Jointed Chain. 60¢

Chalk—(From Jobbers.)

Carpenters' Blue. gro. 40c
 Carpenters' Red. gro. 35c
 Carpenters' White. gro. 30c
 See also Crayons.

Checks, Door—

Bardley's. 45¢
 Columbia. 50¢ to 10¢
 Helipse. 60¢ to 10¢

Chests, Tool—

American Tool Chest Co.
 Boys' Chests, with Tools. 35¢
 Youths' Chests, with Tools. 40¢
 Gentlemen's Chests, with Tools. 30¢
 Farmers', Carpenters', etc., Chests,
 with Tools. 20¢
 Machine's and Fip's Filers' Chests.
 Empty. 40¢
 C. E. Jennings & Co.'s Machine's Tool
 Chests. 35¢ to 10¢

Chisels—

Socket Framing and Firmer
 Standard List. 70¢ to 10¢10
 Buck Bros. 30¢
 Charles Buck. 30¢
 C. E. Jennings & Co. Socket Firmer
 No. 10. 60¢ to 10¢
 C. E. Jennings & Co. Socket Framing
 No. 15. 60¢ to 10¢
 Ohio Tool Co.'s. 70¢
 Swan's. 70¢
 L. & I. J. White. 30¢ to 30¢55

Tanged—

Tanged Firmers. 10¢55 to 40¢10
 Buck Bros. 30¢
 Charles Buck. 30¢
 C. E. Jennings & Co. Nos. 191, 181.
 16¢ to 10¢
 L. & I. J. White, Tanged. 25¢55

Cold—

Cold Chisels, good quality, lb. 13¢ to 15¢
 Cold Chisels, fair quality, lb. 11¢ to 13¢
 Cold Chisels, ordinary, lb. 9¢ to 10¢

Chucks—

Beach Pat. each \$6.00. 35¢55
 Pratt's Positive Drive. 25¢
 Empire. 25¢
 Blacksmith's. 25¢
 Skinner Patent Chucks:
 Independent Lathe Chucks. 50¢
 Universal. 50¢
 Combination. 50¢
 Drill Chucks, New Model. 30¢
 Drill Chucks, Standard. 30¢
 Drill Chucks, Skinner Patent, 0, 1, 2. 40¢
 Drill Chucks, Skinner Patent, 3, 4, 5, 6,
 7, 8. 30¢
 Drill Chucks, Positive Drive. 30¢
 Planer Chucks. 25¢
 Face Plate Jaws. 40¢55
 Standard Tool Co.
 Improved Drill Chuck. 45¢
 Union Mfg. Co.
 Combination. 50¢
 Czar Drill. 35¢55
 Combination Geared Scroll. 40¢
 Geared Scroll. 40¢
 Independent. 50¢
 Independent Steel. 50¢
 Union Drill. 45¢
 Universal. 50¢
 Independent Iron Face Plate Jaws. 40¢
 Independent Steel Face Plate Jaws. 40¢
 Westcott Patent Chucks. 50¢
 Lathe Chucks. 50¢
 Little Giant Auxiliary Drill. 45¢
 Little Giant Double Grip Drill. 45¢
 Little Giant Drill, Improved. 45¢
 Onelda Drill. 45¢
 Scroll Combination Lathe. 45¢

Clamps—

Adjustable, Hammer. 30¢ to 20¢55
 Cabinet, Sargent's. 50¢ to 10¢
 Carriage Makers' P. S. & W. Co. 50¢
 Carriage Makers' Sargent's. 60¢
 Best, Parallel. 35¢ to 10¢
 Lineman's Ulica Drop Forge & Tool Co. 40¢
 Saw Clamps, see Vices, Saw Filers.

Cleaners, Drain—

Iwan's Champion, Adjustable. 55¢
 Iwan's Champion, Stationary. 40¢

Sidewalk—

Star Socket, All Steel. \$4.05 net
 Star Shank, All Steel. \$3.24 net
 W. & C. Shanr. All steel, 7 1/2 in.,
 \$3.00; 8 in., \$3.25.

Cleavers, Butchers'—

Poster Bros. 30¢
 New Haven Edge Tool Co.'s. 45¢
 Fayette & Plumb. 35¢ to 35¢10
 L. & I. J. White. 30¢

Clippers—

Chicago Flexible Shaft Company
 '93 Chicago Horse. \$1.75
 '92 Chicago Horse. \$1.70
 2nd Century Horse, each \$5.00. 20¢
 Lightning Belt. \$15.00
 Chicago Belt. \$20.00
 Stewart's Patent Sheep. \$18.50

Finger Nail Clippers—

Smith & Hemenway Co. doz. net \$2.00

Clips, Axle—

Eagle 5-16 and 3/4 inch. 75¢ to 75¢10
 Norway, 5-16 and 3/4 inch. 60¢ to 70¢

Cloth and Netting, Wire

—See Wire, &c.

Cocks, Brass—

Hardware list:
 Compression, Plain Bibbs, Globe,
 Kerosene, Racking, &c., Cocks.
 70¢ to 10¢75

Coffee Mills—See Mills, Coffee.**Collars, Dog—**

Brass, Walter B. Stevens & Son's list. 40¢
 Embossed, Gilt, Walter B. Stevens &
 Son's list. 30¢ to 10¢
 Leather, Walter B. Stevens & Son's list. 40¢

Combs, Curry—

Metal Stamping Co. 20¢ to 10¢

Mane and Tail—

Covert's Saddlery Works. 60¢ to 10¢

Compasses, Dividers, &c.

Ordinary Goods. 75¢ to 75¢10
 Bernis & Call Hdwr. & Tool Co.
 Dividers. 65¢
 Callipers, Double. 65¢
 Callipers, Inside or Outside. 65¢
 Callipers, Wing. 60¢
 Compasses. 50¢

Compressors, Corn Shock—

J. B. Hughes' 3 doz. \$2.50

Conductor, Pipe, Galva—

L. C. L. to Dealers: Not nested.

A. Eastern. 75¢ to 75¢10
 B. Eastern. 75¢ to 75¢10
 Central. 75¢ to 75¢10
 Southern. 70¢ to 70¢10
 S. Western. 70¢ to 70¢10

Terms, 60 days, 2% cash, 10 days. Factory
 shipments generally delivered.

Coolers, Water—

Gal. each. 2 3 4 6 8
 Labrador \$1.20 \$1.50 \$1.80 \$2.10 2.70
 Gal. 8 4 6 8
 Iceland, ea. \$1.80 2 3 4 6 8 \$3.00
 Gal. 2 3 4 6 8
 Galv. Lined Ea. \$1.25 \$2.00 \$2.2 \$2.90 \$3.90
 25¢

Gav. Lined side handles

Gal. 2 3 4 6 8
 Each. \$1.95 \$2.15 \$2.40 \$3.30 \$4.15. 25¢

Coopers' Tools—

See Tools, Coopers.

Cord—

Braded, Drab. lb. 35¢
 Braded, White, Com. lb. 25¢ to 35¢
 Cable Laid Italian. lb. A, 18¢; B, 10¢
 Common India. lb. 10¢ to 10¢55
 Cotton Sash Cord, Twisted. 20¢ to 25¢
 Patent Russia. lb. 10¢
 Cable Laid Russia. lb. 15¢
 India Hemp, Braded. lb. 10¢
 India Hemp, Twisted. lb. 12¢ to 13¢
 Patent India, Twisted. lb. 12¢ to 13¢

Anniston Cordage Co.: Braided Cotton.
 Old Glory, Nos. 7 to 12. \$1.30 c
 Anniston, Nos. 7 to 12. \$1.25 c
 Old Colony, Nos. 7 to 12. \$1.25 c
 Anniston Drab, Nos. 7 to 12. \$1.30 c
 Pearl Braided Cotton, No. 6 1/2 to 24; 6,
 Nos. 7 to 12. 35¢
 Eddystone Braided Cotton, No. 6 1/2 to 27¢
 Harmony Cable Laid Italian, No. 7 to
 10. \$1.30 c

Peerless:
 Cable Laid Italian. 16¢
 Cable Laid Russian. 14¢
 Cable Laid India. 12¢
 Braided India. 18¢

Samson, Nos. 7 to 12:
 Braded, Drab Cotton. \$1.30 c
 Braded, Italian Hemp. \$1.30 c
 Braded, Linen. \$1.30 c
 Braded, White Cotton or Spot. \$1.30 c

Massachusetts, White. \$1.25 c
 Massachusetts, Drab. \$1.25 c
 Phoenix, White, No. 7 to 12. 24¢
 No. 6 cords, 1/2 extra.

Silver Laid:
 A quality, Drab. 40¢
 A quality, White. 35¢
 B quality, Drab. 35¢
 B quality, White. 30¢
 Italian Hemp. 40¢
 Linen. 67¢

Wire, Picture—

List Oct., '00. 55¢ to 10¢10 to 35¢10 to 10¢55

Cradles—

White Round Crayons, gross 5% to 60¢

Crayons—

White Round Crayons, gross 5% to 60¢
 Cases, 100 gro., \$4.00, at factory.
 D. Stumbo Mfg. Co.
 Junior Crayons, gr. \$3.50
 Metal Workers' Crayons, gr. \$2.50
 Soapstone Pencils, round, flat
 or square. gr. \$1.50
 Rolling Mill Crayons. gr. \$2.50
 Railroad Crayons (compo-
 sition) gr. \$3.00

Zelkner's Lumber:

Red, Blue, Green. \$1.50
 Black. \$1.00
 See also Chalk.

Crooks, Shepherds'—

Fort Madison, Heavy. \$7.00
 Fort Madison, Light. \$6.50

Crow Bars—See Bars, Crow.**Cultivators—**

Victor Garden. 50¢

Cutlery, Table—

International Silver Company:
 No. 12 Medium Knives, 1847. \$3.50
 Star, Eagle, Rogers & Hamilton and
 Anchor. \$3.00
 Wm. Rogers & Son. \$2.50

Cutters—Glass—

H. H. Mayhew Co. 40¢
 Red Devil. 50¢
 Smith & Hemenway Co. 70¢
 Woodward. 40¢

Meat and Food—

American. 30¢
 Each. \$5 \$7 \$10 \$25 \$50 \$80
 Enterprise. 25¢ to 25¢75
 Nos. 5 10 12 22 32
 Each. \$2 \$3 \$2.75 \$4.50 \$6
 Dixon's. \$1.00 to 10¢40

Nos. \$14.00 \$17.00 \$19.00 \$30.00
 Ideal. \$4.15 to 10¢50
 Little Giant. 33¢ to 40¢
 Nos. 305 310 312 320 322
 \$35.00 \$48.00 \$44.00 \$72.00 \$68.00
 N. E. Food Choppers. 40¢
 New Triumph No. 605. 30¢ to 10¢40

Russwin Food No. 1, \$24.00; No. 2, \$27.00
 45¢ to 10¢10
 Sterling. 40¢ to 40¢10
 No. 1. \$2.00 each No. 2. \$2.50 each
 Woodruff's. \$3.00 to 10¢40
 Nos. 100 150
 \$15.00 \$18.00

Enterprise Beef Shavers.

25¢ to 30¢

Slaw and Kraut—

Henry Diston & Sons:
 Slaw, Corn Grater, &c. 40¢
 Kraut Cutters 24 x 7, 26 x 8, 30 x 9.55.
 Kraut Cutters 36 x 12, 40 x 12. 40¢

J. M. Mast Mfg. Co.
 Slaw Cutters, 1 Knife. \$3.00
 Combined Slaw Cutter and Corn
 Grater. \$4.00
 Sterling. \$6.00 each
 Tucker & Dorsey Mfg. Co.:
 Kraut Cutters. 40¢
 Slaw Cutters, 1 Knife, 1 gr. \$24.90
 Slaw Cutters, 2 Knife, 1 gr. \$32 to \$30

Tobacco—

All Iron, Cheap. doz. \$4.25 to \$1.50
 Enterprise. 25¢ to 50¢
 National. doz. No. 1, \$21; No. 2, \$18. 40¢
 Sargent's. doz. No. 2. 40¢
 Sargent's No. 12 and 21. 50¢ to 10¢

Washer—

Appleton's. \$16.00. 50¢ to 10¢10
 Bonney's. 35¢55

Diggers, Post Hole, &c.—

Dalbey Post Hole Auger. per doz. \$9.00
 Iwan's Improved Post Hole Auger. 40¢55
 Iwan's Vaughan Pattern Post Hole
 Augers. \$6.50
 Iwan's Perfection Post Hole Digger.
 Augers. \$8.50
 \$7.50
 Kohler's Universal. \$15.00
 Kohler's Little Giant. \$12.50
 Kohler's Hercules. \$10.00
 Kohler's Invincible. \$9.50
 Kohler's Rival. \$8.50
 Kohler's Pioneer. \$7.50
 Never-Break Post Hole Diggers. \$24.00
 Samson. \$34.00. 25¢

Dividers—See Compasses.**Doors Screen—**

Phillips', style E, 1/4 in. \$10.50
 Phillips', style 77, 1/4 in. \$8.00
 Phillips', style 77, 1/4 in. \$11.00
 Porter's Plain, No. 6. \$7.75
 Porter's Ornamental, No. 70. \$10.50
 Porter's No. 99. \$9.00
 Porter's No. 44. \$10.75

Drawers, Money—

Sun Money Drawers, No. 5, 3 doz. \$9.50;
 No. 6, with Bell, \$10.00; No. 6, with Gong,
 \$10.50.

Tucker's Pat. Alarm Till No. 1, 3 doz.
 \$18; No. 2, \$15; No. 3, \$12; No. 4, \$18

Drawing Knives—

See Knives, Drawing.

Drills and Drill Stocks—

Common Blacksmiths' Drill, each

Breast, Millers Falls. \$1.50 to \$1.75
 Breast, P. S. & W. 10¢55
 Goodell Automatic Drills. 40¢55 to 40¢105
 Johnson's Automatic Drills Nos. 2 and
 3. 10¢55 to 10¢105
 Johnson's Drill Points. 10¢55 to 10¢105
 Millers Falls Automatic Drills. 35¢55
 Ratchet, Curtis & Curtis. 40¢
 Ratchet, Parker's. 40¢
 Ratchet, Weston's. 33¢55
 Ratchet, Whitney's, P. S. & W. 50¢
 Whitney's Hand Drill, No. 1, \$10.00;
 Adjustable, No. 10, \$12.00. 35¢55

Twist Drills—

Bit Stock. 60¢ to 10¢60 to 10¢105
 Taper and Straight Shank. 60¢ to 10¢60 to 1

Forks—

Base Discounts Aug. 1, 1899, list:	
Hay, 3 tine.....	50¢100¢5
Boys' & Fish, 3 tine.....	50¢100¢5
Hay & Boys', 3 tine.....	60¢5
Hay & Boys', 4 tine.....	60¢5
Champion Hay.....	60¢5
Hay & Header, long 3 tine.....	65¢
Header, 4 tine.....	65¢
Barley, 4 & 5 tine, Steel.....	60¢80¢
Manure, 4 tine.....	60¢15¢10¢
Manure, 5 and 6 tine.....	66¢25¢
Spading.....	70¢25¢
Potato Digger, 6 tine.....	80¢15¢
Sugar Beet.....	80¢10¢
Coke & Coal.....	40¢10¢
Heavy Mill & Street.....	65¢
Iowa Dig-Easy Potato.....	60¢10¢
Victor, Hay.....	60¢15¢21¢
Victor, Manure.....	60¢5
Victor, Header.....	65¢
Champion, Hay.....	60¢5
Champion Header.....	65¢
Champion Manure.....	60¢15¢21¢
Columbia, Hay.....	60¢5
Columbia, Manure.....	60¢5
Columbia, Spading.....	70¢12¢
Hawkeye Wood Barley.....	40¢
W. & C. Potato Digger.....	60¢12¢5
Acme Hay.....	60¢10¢5
Acme Manure, 4 tine.....	60¢20¢7¢5
Dakota Header.....	65¢15¢5
Jackson Steel Barley.....	65¢15¢5
Kansas Header.....	60¢5
W. & C. Favorite Wood Barley.....	40¢
Plated.—See Spoons.	

Fountains, Stock—

Double Dewey..... \$ doz. \$13.00

Frames—Saw—White, Straight Bar, per doz. 75¢50¢
Red, Straight Bar, per doz. \$1.00@1.25
Red, Double Brace, per doz. \$1.40@1.50**Freezers Ice Cream—**Qt..... 1 2 3 4 6
Each..... \$1.25 \$1.00 \$1.00 \$2.20 \$2.80**Fruit and Jelly Presses—**

See Presses, Fruit and Jelly.

Fry Pans—See Pans, Fry.**Fuse—**Per 1000 Feet.
Hemp..... \$2.75
Cotton..... 3.30
Waterproof Single Taped..... 3.50
Waterproof Double Taped..... 4.40
Waterproof Triple Taped..... 5.15**Gates, Molasses and Oil—**

Stebbins' Pattern..... 80¢10¢80¢10¢5

Gauges—Marking, Mortise, etc..... 50¢10¢50¢10¢10¢5
Chapin-Stephens Co..... 50¢10¢50¢10¢10¢5

Marking, Mortise, etc..... 50¢10¢50¢10¢10¢5

Scholl's Patent..... 50¢10¢50¢10¢10¢5

Door Hangers..... 50¢10¢50¢10¢10¢5

Fulton's Butt Gauge..... 50¢10¢50¢10¢10¢5

Stanley B. & L. Co.'s Butt & Babbit Gauge..... 50¢10¢50¢10¢10¢5

Wire, Brown & Sharpe's..... 50¢10¢50¢10¢10¢5

Wire, Morse's..... 50¢10¢50¢10¢10¢5

Wire P. S. & W. Co..... 50¢10¢50¢10¢10¢5

Gimlets—Single Cut—

Nail, Metal, Assorted, gro. \$1.40@1.50

Spike, Metal, Assorted, gro. \$2.80@3.50

Nail, Wood Handled, Assorted, gro. \$1.75@2.00

Spike, Wood Handled, Assorted, gro. \$1.25@1.50

Glass, American Window

See Trade Report.

Glasses, Level—

Chapin-Stephens Co..... 50¢10¢50¢10¢10¢5

Glue—Liquid Fish—

Bottles or Cans, with Brush..... 25¢50¢

Cans (1/2 pts., pts., qts., 1/2 gal., gal.)..... 25¢43¢

International Glue Co. (Martin's)..... 40¢10¢50¢

Grease Axle—

Common Grade..... gro. \$1.50@5.50

Dixon's Everlasting..... 10-x palls, ea. 85¢

Dixon's Everlasting, in box, 1 doz. 1 m..... \$1.30; 2 m \$2.00

Grips, Nipple—

Perfect Nipple Grips..... 40¢10¢25¢

Griddles, Soapstone—

Pike Mfg. Co..... 33¢43¢45¢10¢

Grindstones—

Bicycle Emery Grinder..... 60¢50¢

Bicycle Grindstones, each..... \$2.50@3.00

Pike Mfg. Co..... 40¢10¢50¢

Improved Family Grindstones..... per inch, per doz. \$2.00 30¢5

Pike Mower Knife and Tool..... 50¢10¢

Velox Ball Bearing, mounted, Angle Iron Frames..... each, \$3.23

Halters and Ties—

Web..... 40¢25¢

Jute Rope..... 40¢5¢5

Sisal Rope..... 30¢

Cotton Rope..... 45¢25¢

Hemp Rope..... 45¢25¢

Covers & Saddlery Works..... 45¢25¢

Web and Leather Halters..... 70¢

Jute and Manila Rope Halters..... 70¢

Sisal Rope Halters..... 60¢20¢

Jute, Manila and Cotton Rope Ties..... 70¢

Sisal Rope Ties..... 60¢10¢

Hammers—

Handled Hammers—

Heller's Machinists..... 40¢10¢40¢10¢10¢5

Heller's Farmers..... 40¢10¢40¢10¢10¢5

Magnetic Tack, Nos. 1, 2, 3, \$1.25, \$1.50, \$1.75..... 40¢10¢10¢10¢5

Peck, Stow & Wilcox..... 40¢10¢10¢10¢5

Fayette H. Plumb..... 40¢10¢10¢10¢5

Plumb, A. E. Hall..... 40¢10¢10¢10¢5

Engineers' and B. S. Hand..... 40¢10¢10¢10¢5

Machinists' Hammers..... 40¢10¢10¢10¢5

Biveting and Tinnors..... 40¢10¢10¢10¢5

Sargent's C. S. New List.....40¢**Heavy Hammers and Sledges—**Under 3 lb..... 1b 50¢ 75¢10¢5
3 to 5 lb..... 1b 40¢ @8¢
Over 5 lb..... 1b 30¢
Wilkinson's Smiths..... 30¢10¢10¢**Handles—**

Agricultural Tool Handles—

Axe, Pick, etc..... 40¢50¢5

Hoe, Rake, etc..... 45¢50¢5

Fork, Shovel, Spade, etc..... 45¢50¢5

Long Handles..... 45¢50¢5

D Handles..... 45¢50¢5

Cross-Cut Saw Handles—

Atkins..... 40¢5

Champion..... 40¢5

Disston..... 50¢

Mechanics' Tool Handle.75

Auger, assorted..... gro. \$2.50@2.85

Broad Awt..... gro. \$1.65@1.85

Chisel Handles:

Apple Tanged Firmer, gro. ass'd..... \$1.40@1.65

Hickory Tanged Firmer, gro. ass'd..... \$1.15@1.40

Apple Socket Firmer, gro. ass'd..... \$1.75@1.95

Hickory Socket Firmer, gro. ass'd..... \$1.45@1.60

Hickory Socket Framing, gro. ass'd..... \$1.60@1.75

File, assorted..... gro. \$1.80@1.90

Hammer, Hatchet, Axe, etc..... 50¢

Hand Saw, Varished, doz. 50¢35¢

Not Varished..... 65¢75¢

Plane Handles:

Jack doz. 50¢; Jack Bolted..... 75¢

Fore, doz..... 45¢; Fore, Bolted 90¢

Chapin-Stephens Co..... 40¢10¢10¢

Chisel..... 65¢65¢10¢

File and Awt..... 65¢65¢10¢

Saw and Plane..... 40¢40¢10¢

Screw Driver..... 40¢40¢10¢

Millers Falls Adj. and Hatchet Auger..... 45¢10¢

Nicholson Simplicity File Handle..... \$1.20@1.50

P. GRO..... 60¢50¢1.50

Hangers—

NOTE.—Barn Door Hangers are generally quoted per pair, without track, and Parlor Door Hangers per double set with track, etc.

Barn Door, New Pattern, Round Groove, Regular:

Inch..... 3 5 6 8

Single Door..... 1.25 1.60 1.95 2.50

Barn Door, New England Pattern, Check Back, Regular:

Inch..... 3 5 6 8

Single Door..... 1.30 1.85 2.50 3.00

Althit Mfg. Co..... per doz. \$12.00

Reliable No. 1..... per doz. \$15.00

Reliable No. 2..... per doz. \$15.00

Chicago Spring Butt Co.: Friction..... 25¢

Oscillating..... 25¢

Big Twin..... 25¢

Chisholm & Moore Mfg. Co.: Baggage Car Door..... 50¢

Elevator..... 50¢

Railroad..... 50¢

Cronk & Carrier Mfg. Co.: Loose Axle..... 40¢

Roller Bearing..... 60¢10¢

Lane Bros. Co.: Parlor, Ball Bearing..... \$4.15

Parlor, Standard..... \$3.35

Parlor, New Model..... \$2.85

Parlor, New Champion..... \$2.25

Barn Door, Standard..... 50¢10¢5

Hinged..... \$6.40

Covered..... 50¢10¢10¢

Special..... 50¢10¢10¢5

Lawrence Bros.: Advance..... 60¢

Cleveland..... 60¢

Crown..... 60¢

Grant..... 50¢10¢

New York..... 60¢

Peerless..... 60¢10¢

Sterling..... 60¢

Swing, No. 00..... 60¢

Upton, No. 44, \$5.00; No. 45 \$7.00; No. 46, \$9.00.

McKinney Mfg. Co.: No. 1 Special..... 60¢10¢

No. 2, Standard..... 60¢10¢

Hinged Hangers, 16..... 50¢

Meyers' Stayer Hangers..... 60¢

C. S. Smith Mfg. Co.: Lundy Parlor Door..... 50¢10¢

Monarch Barn Door..... 60¢10¢

Never Jump Hinge..... 50¢10¢

Peerless..... 60¢10¢

Perfection..... 70¢5

Pneumic..... 70¢5

Warner's Adjustable..... 70¢10¢

Warehouse Anti-Friction..... 60¢

Richards Mfg. Co.: Pioneer Wood Track No. 8..... \$2.25

Imp'd Wood Track No. 5..... \$2.25

Imp'd Steel Track No. 7..... \$2.70

Ball B'r Steel Track No. 9..... \$2.65

Ball B'r Steel Track No. 10..... \$2.50

Roller B'r Steel Track No. 11..... \$3.45

Roller B'r Steel Track No. 12..... \$2.45

Ball B'r Steel Track No. 13..... \$3.65

Ball B'r Trolley Track No. 19..... 40¢5

Ball Bearing Tandem Trolley Track No. 16..... 40¢

Silent Adjustable Track No. 18..... 40¢

Auto Adjustable Track No. 22..... 40¢

Trolley B. D. No. 17..... \$1.60

Trolley F. D. No. 121..... \$2.70

Trolley F. D. No. 131..... \$2.85

Roller Bearing D. D. No. 25..... 70¢5

Roller Bearing U. S. B. D..... 70¢5

Anti Friction B. D..... 60¢10¢

Ives' Wood Track No. 1..... \$2.15

Ives' Imp'd Wood Track No. 2..... \$2.15

Safety Door Hanger Co.: Storm King Safety..... 60¢

U. S. Standard Hinge..... 60¢

Stowell Mfg. and Foundry Co.: Acme Parlor Ball Bearing..... 40¢

Ajax Parlor Door..... 60¢

Apex Hinge Door..... 50¢10¢5

Atlas..... 60¢

Baggage Car Door.....50¢

Climax Anti-Friction..... 50¢10¢

Elevator..... 40¢

Express..... 50¢

Freight Car Door..... 60¢

Interstate..... 50¢10¢

Lundy Parlor Door..... 50¢10¢

Magic..... 60¢

Matchless..... 60¢10¢

Nansen..... 70¢5

Parlor Door..... 50¢10¢

Railroad..... 50¢10¢

Rex Hinge Door..... 60¢

Street Car Door, 404, 500..... 50¢10¢

Steel, Nos. 300, 404, 500..... 50¢10¢

Underwriter's Fir Door..... 40¢

Wild West Warehouse Door..... 50¢

Zenith for Wood Track..... 50¢10¢

A. L. Sweet Iron Works: Eagle..... 60¢10¢

Eagle..... 50¢10¢

Perfection..... 60¢

Pilot..... 40¢

Taylor & Boggs Fy Co.'s Kidder's Roller Bearing..... 50¢15¢10¢5

Wilcox Mfg. Co.: Bike Roller Bearing..... 60¢10¢

C. J. Roller Bearing..... 60¢10¢

Cyclo Ball Bearing..... 50¢

Dwarf Ball Bearing..... 40¢

Ives, Wood Track..... 60¢10¢

L. T. Roller Bearing..... 60¢10¢5

New Era Roller Bearing..... 50¢10¢

O. K. Roller Bearing..... 60¢10¢5

Prindle, Wood Track..... 60¢

Richards' Wood Track..... 60¢

Richards' Steel Track..... 50¢10¢

Spencer Roller Bearing..... 60¢10¢

Tandem Nos. 1 and 2..... 60¢

Underwriters' Roller Bearing..... 40¢

Velox Auditorium Ball Bearing..... 50¢

Wilcox Barn Trolley No. 133..... 40¢

Wilcox Elev. Door, Nos. 112 and 123..... 50¢

Wilcox Elev. Door, No. 132..... 40¢

Wilcox Fire Trolley, Roller Bearing..... 30¢

Wilcox Le Roy Noiseless Ball Bearing..... 40¢

Wilcox New Century..... 50¢10¢10¢

Wilcox O. K. Steel Track..... 50¢

Wilcox O. K. Trolley..... 50¢

Wilcox Trolley Ball Bearing..... 40¢

Wilcox Wideman Narrow Gauge, Ball Bearing..... 40¢

For Track, see Rail

Hangers, Garment—

Western, W. G. Co..... 70¢10¢

Gate—

Myers' Patent Gate Hangers, \$ doz..... net 4.50

Hasps—

McKinney's Perfect Hasp, \$ doz..... 50¢

Hatchets—

Regular list..... 40¢40¢5

Heaters, Carriage—

Clark, No. 2, \$2.25; No. 2D, \$2.75; No. 3, \$2.25; No. 1, \$2.50 each..... 10¢

Clark Coal, \$0.75 \$ doz..... 10¢

Hinges—**Blind and Shutter Hinges—**

Wire Goods Co.:
Acme.....60&10%
Chief.....70%
Crown.....70&10%
Carr.....65%
Y Brass.....70&10%
Carr Harness.....50&10%

Wrought Iron—
Boz, 6 in., per doz. \$1.00; 8 in. \$1.25;
10 in., \$2.50.
Cotton.....doz. \$1.05@1.25
Wrought Staples, Hooks, &c.—
See Wrought Goods.

Miscellaneous—
Hooks, Bench, see Staps, Bench.
Bush, Light, doz. \$5.50; Medium,
\$6.00; Heavy, \$6.50

Grass.....Nos. 1 2 3 4
Best.....\$1.50 1.75 2.00
Common.....\$1.30 1.50 1.60 1.80
Potato and Manure.....60&15%
Whitelines.....lb. 64@66
Hooks and Eyes:
Brass.....60&10&10@70%
Malleable Iron.....70&5@70&10%
Covert Mfg. Co. Gate and Scuttle Hooks 35%
Covert Saddlery Works' Self Looking
Gate and Door Hooks.....60%
Ft. Madison Cut-Easy Corn Hooks.....
doz. \$8.25 net

Bench Hooks—See Bench Stops.
Corn Hooks—See Knives, Corn.

Horse Nails—See Nails, Horse

Horseshoes—
See Shoes, Horse.

Hose Rubber—
Garden Hose, 1/2-inch:
Competition.....ft. 4 1/2 @ 5 c
4-ply Standard.....ft. 6 1/2 @ 7 c
4-ply Standard.....ft. 7 1/2 @ 8 c
4-ply extra.....ft. 8 1/2 @ 9 c
4-ply extra.....ft. 10 @ 10 1/2 c
Cotton Garden, 1/2-in., coupled:
Low Grade.....ft. 6 @ 7 c
Fair quality.....ft. 8 @ 9 c

Irons—Sad—
From 4 to 10.....lb. 3 1/2 @ 3 c
B. B. Sad Iron.....lb. 3 1/2 @ 3 1/2 c
Chinese Laundry.....lb. 4 1/2 @ 5 c
Chinese Sad.....lb. 4 1/2 @ 5 c
Mrs. Potts', cents per set:
Nos.....50 55 60 65
Jap'd Tops 62 59 78 69 71
Tina Tops 65 62 75 72
New England Pressing, lb. 3 1/2 @ 4 1/2

Pinking Irons—doz. 60@60c
Soldering—
Soldering Coppers 1/4 and 3/8.....19@20c
1 1/4 and 2.....21@22c
Jack's Wagon—
Covert Mfg. Co.:
Auto Screw.....50&5%
Steel.....50&5%
Covert's Saddlery Works':
Daisy.....60&10%
Victor.....60&10%
Lockport.....50%
Lane's Steel.....30&10%

Kettles—
Brass, Spun, Plain.....\$20@25%
Enameled and Cast Iron—See Ware, Hollow.

Knives—
Butcher, Kitchen, &c.—
Foster Bros' Butcher, &c.....30%
Smith & Hemenway Co.....40&10%
Wilkinson Shear & Cutlery Co.....30%
Hay and Straw—See Hay Knives.

Corn—
Withington Acme, 7 doz., \$2.50; Dent,
\$2.75; Ad. Serrated, \$2.20; Sor-
ranted, \$2.10; Yankee No. 1, \$1.50;
Yankee No. 2, \$1.15.

Drawing—
Standard List.....70&10@70&10&10%
Bradley's.....35%
C. E. Jennings & Co. Nos. 45, 46, 60&10%
Jennings & Griffin Nos. 1, 3, 4, 6&10%
Ohio Tool Co.'s.....70%
Swan's.....70&10&3 1/2%
Watrous.....10&10%
L. & J. J. White.....20&5@25%

Hay and Straw—
Lightning.....7 doz. \$9.50@10%
Iwan's Sickle Edge.....7 doz. \$10.00
Iwan's Serrated.....7 doz. \$10.00
Maine.....7 doz. \$9.50

Mining—
Buffalo.....7 gro. \$13.00

Miscellaneous—
Farriers.....doz. \$3.00@3.5%
Wostenholm's.....7 doz. \$3.00@3.25

Knobs—
Base, 1/4-inch, Birch, or Maple,
Rubber tip, gro.....\$1.00@1.15
Carriage, Jap. all sizes, gro. 10@5c
Door, Mineral.....doz. 65@70c
Door, For. Jap'd.....doz. 70@75c
Door, For. Nickel.....doz. \$2.05@2.15
Bardley's Wood Door, Shutter, &c.....15%
Picture, Sargent's.....60&10&10%

Lacing Leather—
See Belting Leather.

Ladders, Step Etc.—
Lane's Store.....25%
Myers Noiseless Store Ladders.....30%

Ladies—Melting—
L. & G. Mfg. Co. Low List.....25%
P. S. & W.....50%
Reading.....60%
Sargent's.....45&10%

Lanterns—Tubular—
Regular Tubular No. 0, doz. \$4.35@4.75
Light Tubular, No. 0, doz. \$4.75@5.25
Hinge Tubular, No. 0, doz. \$4.75@5.25
Other Styles.....60&10@10&10%

Bull's Eye Police—
No. 1, 2 1/4 inch.....\$9.50@9.75
No. 2, 3 inch.....\$9.75@10.00

Lasts and Stands Shoe—
Stowell's Atlas, Malleable Iron.....50%
Stowell's Badger, Cast Iron.....50%

Latches—
Thumb—
Roagin's Latches, with secret, doz. \$3.50@4.00
Leaders Cattle—
Small.....doz. 55c; large, 60c

Covert Mfg. Co.....35%
Lifters, Transom—
R & E.....33 1/2%

Lines—
Wire Clothes, Nos. 18 19 20
100 feet.....\$1.50 2.00 1.65
75 feet.....\$1.80 1.70 1.50

Samson Cordage Works:
Solid Braided Chalk, No. 0 to 3.....10%
Silver Lake Braided Chalk, No. 0, \$6.00;
No. 1, \$6.50; No. 2, \$7.00; No. 3, \$7.50

5 gr.....20%
Mason's Lines, Shade Cord, &c.: White
Cotton, No. 3 1/2, \$1.50; No. 4, \$2.00; No.
4 1/2, \$2.50; Colors, No. 3 1/2, \$1.75; No. 4,
\$2.25; No. 4 1/2, \$2.75; Tanned, No. 3 1/2,
\$2.50; No. 4, \$3.50; No. 4 1/2, \$4.50

Tent and Awning Lines: No. 5, White
Cotton, \$7.50; Drab Cotton, \$8.50.....20%
Clothes Lines, White Cotton: 50 ft., \$2.75;
60 ft., \$3.25; 70 ft., \$3.75; 75 ft., \$4.00;
80 ft., \$4.25; 90 ft., \$4.75; 100 ft., \$5.25

Anniston Waterproof Clothes: 50 ft., \$7.
Gro.: \$35.00; Gilt Edge, \$34.00; Air Line
\$24.00; Acme, \$19.00; Alabama, \$17.00;
Empire, \$18.00; Advance, \$15.00; Ori-
ole, \$22.00; Albermarle, \$15.00; Eclipse,
\$13.50; Chicago, \$12.50; Standard,
\$11.00; Columbia, \$9.50.

Locks—Cabinet—
Cabinet Locks.....33 1/2@35 1/2%
Door Locks, Latches, &c.—
[Net prices are very often made on
these goods.]

Reading Hardware Co.....50%
R. & E. Mfg. Co.....40&10%
Sargent & Co.....40&10%
Stowell's Steel Door Latches.....50%

Elevator—
Stowell's.....50%

Padilocks—
Wrought Iron.....75&10&5@80&5%
R. & E. Mfg. Co. Wrt. Steel and Brass.....
75&10&10%

Sash, &c.—
Ivys' Patent.....62 1/2%
Bronze and Brass.....50%
Crescent.....50%
Wrought Bronze and Brass.....50%
Wrought Steel.....50%
Reading.....net 50%

Machines—Boring—
Com. Upright, Without Augers.....\$2.00
Com. Angular, Without Augers.....\$2.25
Without Augers:
R. & E. Mfg. Co.: Upright, Angular,
Improved No. 3, \$4.25 No. 1, \$5.00
Improved No. 4, 3.75 No. 2, 3.38
Improved No. 5, 2.75
Jennings', No. 4, \$1.15 No. 1, 8.50
Millers' Falls.....5.75
Snell's, Rice's Pat. 2.50 2.75

Corking—
Reisinger Invincible Hand Power.....
7 doz. \$45.00

Fence—
Williams Fence Machines.....each, \$5.50

Holisting—
Moore's Anti-Friction Differential Pul-
ley Block.....30%
Moore's Hand Hoist, with Lock Brake, 20%

Ice Cutting—
Chandler's.....15&10%

Washing—
Boas Washing Machine Co.: Per doz.
Boss No. 1; Boss Rotary.....\$57.00
Boss No. 7; Dietz Rotary.....\$60.00
Champion Rotary; Hammer No. 1.....\$54.00
Standard Champion No. 1.....\$48.00
Standard Perfection.....\$36.00
Cint Square Western.....\$30.00
Unedea American, Round.....\$29.00

Mallets—
Bicor.....55&5@50%
Lignumvite.....55&5@50%
Timbers', Hickory and Applewood,
doz.....50@55c

Mashers, Vegetable—
Western, W. G. Co., Potato.....60&10%

Mats—Door—
Elastic Steel (W. G. Co.).....10%

Mattocks—
See Picks and Mattocks.

Milk Cans—See Cans, Milk

Mills—Coffee, etc.—
Richter's Mfg. Co.....25@30%
National List Jan. 1, 1904.....30%
Parker's Columbian; Victoria, 50&10&10%
Parker's Box and Side.....50&10&60%
Sun, No. 100, 1 to mill.....7 doz. \$3.00
SWITT, Lake Bros Co.....30%

Mowers, Lawn—
Net prices are generally quoted.
Cheap.....all sizes. \$1.75@2.00
Good.....all sizes. \$2.25@2.50

High Grade 4.25 4.50 4.75 5.00
Continental.....60&5%
Great American.....70%
Quaker City.....70%
Pennsylvania.....60&5%
Pennsylvania, Jr., Ball Bearing.....60%
Pennsylvania Golf.....50%
Pennsylvania Horse.....35&5%
Pennsylvania Pony.....40&5%
Philadelphia.....40&5%
Styles M. S. C. K. T.....70&5%
Style A, all Steel.....60&5%
Style E, High Wheel.....70&10&5%
Drexel and Gold Coin, low list.....40&5%

Nails—
Cut and Wire. See Trade Report.
Wire Nails and Brads, Papered.
List July 20, 1899.....85&10&10@90%
Hungarian, Finishing, Upholster-
ers', &c. See Tacks.

Horse—
Nos. 6 7 8 9 10
A. C. E.....25 22 21 21 21 40&5%
C. B. E.....25 22 21 21 21 40%
Anchor.....21 20 19 18 40&5%
Champion.....20 20 20 20 20 50%
Coleman.....18 18 18 18 18 50%
Maud S.....25 22 21 21 21 50%
New Haven.....21 20 19 18 40&5%
Putnam.....21 20 19 18 35&5%
New Putnam 18 17 16 16 10&10%
Western, per lb.....8 1/2%
Jobbers' special brands, per lb. 8@8 1/2%

Picture—
Brass Head.....1 1/2 2 3 3 1/2 in.
Por. Head.....1.50 .60 .70 .95 1.00 gro.
1.10 1.10 1.10 ..gro.

Nippers, See Pliers and Nippers.

Nuts—
Cold Punched; Off list.
Mfrs. or U. S. Standard.
Square, plain.....\$5.10
Hexagon, plain.....\$5.60
Square, C. T. & R.....\$5.30
Hexagon, C. T. & R.....\$6.00

Hot Pressed:
Mfrs., U. S. or Nar. Gauge Stand.
Square Blank.....\$5.80
Hexagon Blank.....\$6.30
Square Tapped.....\$5.80
Hexagon Tapped.....\$6.30

Oakum—
Best or Government.....lb. 6 1/2%
Navy.....lb. 6 c
U. S. Navy.....lb. 6 c
Plumbers' Spun Oakum.....2 1/2%
In carload lots 1/4 lb. off f.o.b. New
York.

Oil Tanks—See Tanks, Oil.

Oilers—
Brass and Copper.....60&10%
Tin or Steel.....65&10%
Zinc.....65&10%
Chase or Paragon:
Brass and Copper.....45&10@50%
Tin or Steel.....65&10%
Zinc.....65&10%
Malleable, Hammers Improved, No. 1,
\$9.60; No. 2, \$4; No. 3, \$4.40; No. 4, \$4.80
Malleable, Hammers' Old Pattern
same list.....50&10%
American Tube & Stamping Co.:
Spring Bottom Cans.....70&10%
Railroad Oilers etc.....60&10%
60&10%

Openers—Can—
French.....doz. 55c
Iron Handle.....doz. 25@37c
Sprague, Iron Hdl., per doz. 35@40c
Sardine Scissors.....doz. \$1.75@3.00
Marvel.....per doz. \$1.25
National.....50%
Stowell's Sprague.....per doz. 35@45%
Tip Top.....per doz. \$0.75
Triumph shear.....7 doz. \$9.00

Egg—
Nickel Plate.....per doz., \$2.00
Silver Plate.....per doz., \$4.00

Packing—
Asbestos Packing, Wick and Rope,
1 1/2 @ 15c lb.

Rubber—
Sheet, C. I.....8@10c
Sheet, C. O. S.....9@13c
Sheet, C. B. S.....10@14c
Sheet, Pure Gum.....50@65c
Sheet, Red.....40@50c
Jenkins' Standard, 1/2 @ 3/8.....35@55c

Miscellaneous—
American Packing.....7@10c lb.
Cotton Packing.....16@25c lb.
Italian Packing.....9@12 1/2c lb.
Jute.....4@4 1/2c lb.
Russia Packing.....8@11c lb.

Pails—Creamery
S. S. & Co., with gauges, No. 1 \$5.25;
No. 2, \$6.50; 7 doz.

Galvanized—
Price per doz.
Quart.....10 1 1/2 1 1/2
Water, Regular.....1.50 1.75 2.00
Water, Heavy.....2.75 3.00 3.25
Fire, Rd. Bottom.....2.30 2.60 2.90
Well.....2.35 2.50 2.75

Pans—Dripping—
Standard List.....60&10@60&10&5%
Fry:
Common Lapped:
No. 1 2 3 4 5
Per doz. \$0.35 1.00 1.10 1.30 1.60

Roasting and Baking—
Regal, S. S. & Co., 7 doz., Nos. 5, \$4.50;
10 \$5.25; 20, \$6.75; 30, \$8.25.
Savory, 7 doz., net, Nos. 200, \$9.00; 400,
\$15.00.

Simplex, 7 gro.: 50 60 140 150 160
No. 40 50 60 140 150 160
\$30.00 35.00 42.00 51.00 59.00 46.00

Paper—Building Paper—
Per roll
Asbestos.....lb.
Building Felt.....2 1/2%
Mill Board, sheet, 1/2 @ 1/4 inches 3 1/2%
Mill Board, roll, thicker than 1-16
inch.....3 1/2%
Mill Board, roll, 1-16 in. thick and
less.....2 1/2%

Rosin Sized Sheathing: 500 sq. ft.
Light wt., 25 lbs. to roll, \$0.40@0.45
Medium wt., 30 lbs. to roll, \$0.45@0.50
Heavy wt., 40 lbs. to roll, \$0.50@0.70

Black Water Proof Sheathing, 500
Sq. ft., 1 ply, 65c; 2 ply, 85c; 3
ply, \$1.10; 4 ply, \$1.25.

Deafening Felt, 3, 6 and 1 1/2 sq. ft.
to lb., ton.....\$4.00
Red Rope Roofing, 250 sq. feet per
roll.....\$1.75

NOTE—These goods are often sold at
delivered prices.

Tarred Paper.
1 ply (roll 300 sq. ft.), ton.....\$25.50@25.50
2 ply, roll 100 sq. ft.....55@60c
3 ply, roll 100 sq. ft.....75@80c
Slater's Felt (roll 600 sq. ft.).....75c

NOTE—Above prices often include de-
livery, and are for Eastern territory,
where prices are controlled by agreement
between the manufacturers. In open
territory much lower prices are current.

R. M. Stone Surfaced Roofing (roll
110 sq. ft.).....\$2.75

Sand and Emery—
Flint Paper and Cloth.....50&10@60%

Garnet Paper and Cloth.....25%
Emery Paper and Cloth.....50&10@60%

Parers—Apple—

Advance.....doz. \$4.50
Baldwin.....doz. \$5.00
Bonanza Improved.....each \$5.50
Daisy.....doz. \$4.00
Dandy.....each \$7.50
Kureka Improved.....each \$20.00
Family Bay State.....doz. \$15.00
Improved Bay State.....doz. \$36.00
Little Star.....doz. \$5.00
New Lightning.....doz. \$7.50
Reading 73.....doz. \$4.00
Reading 75.....doz. \$7.00
Rocking Table.....doz. \$6.00
Turn Table '98.....doz. \$6.75
White Mountain.....doz. \$6.00

Potato—
Saratoga.....doz. \$7.00
White Mountain.....doz. \$6.00

Picks and Mattocks—
List Feb. 23, 1899.....70&5@70&10%

Pinking Irons—
See Irons, Pinking.

Pins—Escutcheon—
Brass.....60&60&10%
Iron, list Nov. 11, '85.....60&60&10%

Pipe, Cast Iron Soil—
Standard, 2-6 in.....50&10%
Extra Heavy, 2-6 in.....65%
Fittings.....70%

Pipe, Merchant,
Steel Carload Lots,
f.o.b. Pittsburgh. Galva-
nized.
1/2, 3/4, 1 inch.....65%
1 1/4 inch.....71%
1 1/2 to 6 inch.....75%
7 to 12 inch.....71%

Pipe, Sewer—
Jobbers' Prices—
Standard Pipe and Fittings, 2 to 2 1/2 in.
New England.....67%
New York and New Jersey.....70%
Maryland, Delaware, East Penn. 75%
West Penn and West Va.....73%
Virginia.....75%
Ohio, Michigan and Ky.....76%
Indiana.....77%
Carload lots are generally delivered.

Pipe, Stove—
Edwards' Nested Stove Pipe:
C. L. L.
5 in., per 100 joints.....\$7.50 8.50
6 in., per 100 joints.....8.00 9.00
7 in., per 100 joints.....9.00 10.00

Planes and Plane Irons—
Wood Planes—
Bench, First quality.....40&5@40&10%
Bench, Second qual.....50&5@50&10%
Molding.....35&5@35&10%
Bailey's (Stanley R. & L. Co.)
5&10@25&10&10%

Chapin-Stephens Co.:
Bench, First Quality.....40&40&10%
Bench, Second Quality.....50&50&10%
Molding.....35&5@35&10%
Toy and German.....40&40&10%
Gage Self Setting.....35%
Ohio Tool Co.:
Bench, First Quality.....40&40&10%
Bench, Second Quality.....50&50&10%
Molding.....35&5@35&10%
Adjustable Wood Bottom.....60%
Union.....60%

Iron Planes—
Bailey's (Stanley R. & L. Co.)
2&5@10&20&10%
Chapin's Iron Planes.....50&10%
Miscellaneous Planes (Stanley R. & L.
Co.).....20&10@20&10&10%
Ohio Tool Co.'s Iron Planes.....60%
Sargent's.....60&50&10%
Union.....60%

Plane Irons—
Wood Bench Plane Irons.....
50&5@50&10%

Buck Bros.....30%
Chapin-Stephens Co.....60&60&10%
Ohio Tool Co.....50%
Stanley R. & L. Co.....20&10@20&10&10%
L. & J. J. White.....20&5@25%

Planters, Corn, Hand.
Kohler's Eclipse.....7 doz. \$3.50

Plates—
Felloe.....lb. 3 1/2 @ 4c
Self-Sealing Pie Plates (S. S. & Co.),
7 doz. \$3.00.....50%

Pliers and Nippers—
Button Pliers.....75&75&10%
Gas Burner, per doz., 5 in., \$1.25@
\$1.30; 6 in., \$1.45@1.50
Gas Pipe.....7 8 10 12-in.
\$3.00 \$3.25 \$3.00 \$3.75
Aeme Nippers.....50&50&5%

Bernard's:
Cutting Nippers.....70&5%
Parallel Nippers.....33&5%
Paragon Pliers.....50%
Lodi Pliers.....50%
Elm City Fence Pliers.....33&4

Cronk & Carrier Mfg. Co.:
American Button.....75&10%
Cronk's.....70&10%
Improved Button.....60%
Stub's Pattern.....50%
Combination and others.....33&5%

Heller's Farriers' Nippers, Pincers,
and Tools 40&10@40&10&10%
P. S. & W. Tinnars' Cutting Nippers,
30&30&10%

Swedish Slide, End and Diagonal Cut-
ting Pliers.....50%

Utica Drop Forge and Tool Co.:
Pliers and Nippers, all kinds.....40%

Plumbs and Levels—
Chapin-Stephens Co.:
Plumbs and Levels.....30&30&10&10%
Chapin's Imp. Brass Cor.....40&40&10&10%
Pocket Levels.....30&30&10&10%
Level Glasses.....60&60&10&10%
Dixon's Plumbs and Levels.....70%
Dixon's Pocket Levels.....70%
C. E. Jennings & Co.'s Iron.....25&10%
C. E. Jennings & Co.'s Iron, Adjustable.....
53&4&10%

Stanley R. & L. Co.....30&10@30&10&10%

Stanley's Duplex..... 30@30&10&10%
Woods' Extension..... 33@33

Poachers, Egg-

Buffalo Steam Egg Poachers, # doz.
No. 1, \$6.00; No. 2, \$1.00; No. 3,
\$1.00; No. 4, \$12.00..... 50%

Points, Glaziers'-

Bulk and 1 lb. papers..... lb. 8 3/4c
1/2 lb. papers..... lb. 9 1/4c
1/4 lb. papers..... lb. 9 3/4c

Pokes, Animal-

Ft. Madison Hawkeye..... # doz. \$3.25
Ft. Madison Western..... # doz. \$3.00

Police Goods-

Manufacturers' Lists..... 25@25&25%
Towers..... 25%

Polish-Metal-

Prestoline Liquid, No. 1 (1/2 pt.), # doz.
\$3.00; No. 2 (1 qt.), \$9.75..... 40%

Prestoline Paste..... 40@10%
George William Hoffman:

U. S. Metal Polish Paste, 3 oz. boxes, #
doz. 50¢; # gr. \$1.50; 1/2 lb. boxes, #
doz. \$1.25; 1 lb. boxes, # doz. \$2.25.

U. S. Liquid, 8 oz. cans, # doz. \$1.25;
gr. \$12.00.

Barkeepers' Friend Metal Polish, # doz.
\$1.75; # gr. \$15.00.

Wynn's White Silk, 1/2 pt. cans, #
doz..... \$2.00

Stove-

Black Eagle Benzine Paste, 5 lb. cans.....
10%

Black Eagle, Liquid, 1/2 pt. cans # doz. 75¢
Black Jack Paste, 1/2 lb. cans # gro. \$9.00

Black Kid Paste, 5 lb. cans, each, \$9.50
Ladd's Black Beauty, # gr. \$10.00..... 50%

Joseph Dixon's, # gr. \$5.75..... 10%

Dixon's Plumber's, # gr. \$5.75..... 10%

Fireclay, # gr. \$3.50..... 10%

Gem, # gr. \$4.50..... 10%

Japanese, # gr. \$3.50..... 10%

Jet Black, # gr. \$3.50..... 10%

Peerless Iron Enamel, 10 oz. cans.....
doz. \$1.50

Wynn's:

Black Silk, 5 lb. pail..... each 70¢

Black Silk, 1/2 lb. box..... # doz. \$1.00

Black Silk, 5 oz. box..... # doz. \$0.75

Black Silk, 1/2 pt. liq..... # doz. \$1.00

Poppers, Corn-

1 qt. Square..... gro. \$9.00

1 qt. Round..... gro. \$10.00

1 1/2 qt. Square..... gro. \$11.00

2 qt. Square..... gro. \$12.00

Post Hole and Tree Augers and Diggers-

See also Diggers, Post Hole, &c.

Posts, Steel-

Steel Fence Posts, each, 5 ft., 4 1/2 in.; 6
ft., 4 1/2 in.; 6 1/2 ft., 4 1/2 in.

Steel Hitching Posts, each..... \$1.30

Potato Parers-

See Parers, Potato.

Pots- Glue-

Enamelled..... 40%

Tinned..... 35%

Powder-

In Canisters:

Duck, 1 lb. each..... 45¢

Fine Sporting, 1 lb. each..... 75¢

Rifle, 1/2 lb. each..... 15¢

Rifle, 1 lb. each..... 25¢

King's Semi-Smokeless:

Keg (25 lb. bulk)..... \$8.50

Half Keg (12 1/2 lb. bulk)..... \$3.50

Quarter Keg (6 1/4 lb. bulk)..... \$1.50

Case 34 (1 lb. cans bulk)..... \$8.50

Half case (1 lb. cans bulk)..... \$4.50

King's Smokeless: Shot Gun Rifle

Keg (25 lb. bulk)..... \$12.00 \$15.00

Half Keg (12 1/2 lb. bulk) 6.25 7.75

Quarter Keg (6 1/4 lb. bulk) 3.25 4.00

Case 24 (1 lb. cans bulk), 14.00 17.00

Half case (1 lb. cans bulk) 7.25 8.75

Robin Hood smokeless Shot Gun..... 50¢&20%

Presses-

Fruit and Jelly-

Enterprise Mfg. Co..... 20@25%

Sensitive..... 30@35%

2 qt., \$2.00; 4 qt., \$4.00; 10 qt., \$6.00 each.

Seal Presses-

Morrill's No. 1, per doz. \$20.00..... 50%

Pruning Hooks and Shears-See Shears.

Pullers Nail-

Cyclops..... 50%

Dupl Improved Nail Puller..... 50%

Miller's Falls, No. 3, per doz. \$12.00..... 50%

Pearson No. 1, Cyclone Spike Puller,
each \$30.00..... 50%

Peican, # doz. \$9.00..... 40@10%

Seranton, Case Lots:
No. 2 (4 large)..... \$5.50

No. 3 (8 small)..... \$3.00

Smith & Hammerway Co.:

Ajax..... 60%

Diamond B. No. 2, case lots # doz. \$6.00

Diamond B. No. 3, case lots # doz. \$5.50

Eureka..... 50%

Giant, No. 1, # doz. \$18; No. 2, \$16.50;
No. 3, \$15..... 40%

Yankee..... 60%

Pulleys-Single Wheel-

Inch..... 2 2 1/2 3
Averaging, doz. \$0.55 85 1.15

Hay Fork, Swivel or Solid Eye.....
doz., 4 in. \$1.15; 5 in., \$1.40

Inch..... 2 2 1/2 3

Hot House, doz. \$0.70 90 1.25

Inch..... 1 1/4 1 1/2 1 3/4

Src-c, doz. \$0.16 19 30

Inch..... 1 1/4 1 1/2 1 3/4

Side, doz. \$0.30 40 55 63

Inch..... 1 1/4 1 1/2 1 3/4

Tackle, doz. \$0.30 43 53 1.00

Stowell's:

Ceiling or End, Anti-Friction, 60@10%

Dumb Walter, Anti-Friction, 60@10%

Electric Light..... 60%

Slide, Anti-Friction..... 60@10%

Sash Pulleys-

Common Frame: Square or Round
End, per doz., 1 1/4 and 2 in., 16@19c
Auger Mortise, no Face Plate, per
doz., 1 1/4 and 2 in., 16@19c
Auger Mortise, with Face Plate, per
doz., 1 1/4 and 2 in., 16@19c
Common Sense, 1 1/4 in., 16; 2 in., 19
2 in., 20¢.
Fox-All-Steel, Nos. 3 and 7, 2 in., # doz. 50%
Grand Rapids All Steel Noiseless..... 70&5%
Ideal..... 1 1/4 in., 16; 2 in., 19
Niagara..... 1 1/4 in., 16; 2 in., 19
No. 20, Troy..... 1 1/4 in., 14 1/4; 2 in., 16 1/4
Star..... 1 1/4 in., 16; 2 in., 19
Tackle Blocks-See Blocks.

Pumps-

Cistern..... 60@60&10%

Pitcher Spout..... 30@30&10%

Wood Pumps, Tubing, Etc..... 45@50%

Pump Leathers-

Plunger and Lower Valve-Per gro.:

Inch..... 2 2 1/2 3 3 1/2 4 4 1/2

Inch..... 3 3 1/2 4 4 1/2 5 5 1/2

Plunger Cup Leathers-Per 100:

Inch..... 2 1/2 3 3 1/2 4 4 1/2

Inch..... 2 1/2 3 3 1/2 4 4 1/2

Barnes Dbl. Acting (low list)..... 50@10%

Contractors' Rubber Diaphragm No. 2
E. & L. Block Co..... \$16.00

Day Spray Pump..... # doz. \$7.20

Flint & Walling's Fast Mail (low list) 55¢

Plint & Walling's Pitcher Spout..... 30%

National Specialty Mfg. Co., Measur-
ing, \$6.00..... 30%

Mechanical Sprayer..... \$1.30

Myer's Pumps, low list..... 50%

Myer's Power Pumps..... 50%

Myer's Spray Pumps..... 50%

Punches-

Saddlers' or Drive, good..... doz. 65@70¢

Spring, single tube, good quality.....
\$1.75@2.00

Revolving (tubes)..... doz. \$3.50@3.75

Bemis & Call Co.'s Cast Steel Drive..... 50%

Bemis & Call Co.'s Check..... 55%

Benard Spring Belt Punches..... 35¢

Lodi Spring Belt Punches..... 30%

Morrill's No. 1 (A.B.C.) # doz., \$15.00..... 50%

No. 2 # doz. \$22.50..... 50%

Heracles, each \$7.50..... 50%

Niagara Hollow Punches..... 40%

Niagara Solid Punches..... 55@10%

Paragon Spring Belt Punches..... 30%

Steel Screw, B. & K. Mfg. Co..... 40%

Tinners' Hollow, P. S. & W. Co. 35¢&5%

Tinners' Solid, P. S. & W. Co. # doz.....
\$1.44..... 60%

Rail- Barn Door, &c.-

Cast Iron, Barn Door: Flange Screw
Holes for Rd. Groove Wheels:

1/2 3/4 1 in. \$1.70 \$2.10 \$3.00 100 feet.

Angular for Sq. Groove Wheels:

Small, Med. Large..... \$1.50 1.90 2.60 100 feet.

Sliding Door, Iron Painted..... 24@25¢

Sliding Door, Wrought Brass, 1 1/4
in..... lb. 35¢. 50%

Allith Mfg. Co. No. 1, Reliable Hanger

Track, # foot..... 8¢

Allith Mfg. Co. No. 2, Reliable Hanger

Track, # foot..... 10¢

Cronk's Double Braced Steel Rail, #
foot..... 3 1/2¢

Cronk's O. T. T. Rail..... 3 1/2¢

Lane's Hinged Track, # 100 ft., 1 in.,
\$3.70; 1 1/4 in., \$4.40

Lane's O. N. T., # 100 ft., 1 inch, \$3.00;
1 1/4 inch, \$3.70; 1 1/2 inch, \$4.00

Lane's Standard, 1 1/4 in., # 100 ft..... 4.10

Lawrence Bros., New York..... 50%

Lawrence Bros., New York..... 50%

McKinney's Hinged Hanger Rail #
foot, 1 1/4 in..... 50%

McKinney's None Better..... # ft. 3 1/2¢

McKinney's Standard..... # ft. 4 c

Myers' Station Track..... 50&10%

Safety Door Hanger Co.'s Storm King
Safety..... 50%

Safety Door Hanger Co.'s U. S. Standard..... 60%

Smith's Wrought Bracket, Plain..... 3 1/2¢

Smith's Special..... 4 1/2¢

Smith's Never-Jump, per ft. 1 1/2..... 50%

Smith's Plain Steel Rail, 1 1/4 in..... 30%

Smith's Milled Steel..... 3 1/2¢

Stowell's Cast Rail..... # ft. 1 1/2¢

Stowell's Steel Rail, Plain..... 25%

Stowell's Wrought Bracket, 1 3/8 in.....
ft. 3¢

Stowell's Wrought Bracket, 1 1/2 in.....
ft. 3 1/2¢

Swett's Hyllo, per ft. 1 1/2..... 50&10%

Swett's P. L. B. Steel Rail, # 100 ft. \$3.00

Rakes-

Net Prices, Malleable Rakes:

Shank..... 10 12 14 16-tooth

Socket..... \$1.50 1.60 1.75 1.85

Steel Garden and Gravel, Aug. 1,
'99 List..... 70%

Weldless Steel..... 75¢&5%

Malleable Iron, Garden..... 70@10%

Lawn Rakes, Metal Head, per doz.,
20 teeth..... \$5.25@5.50

2 1/2 teeth..... \$3.50@3.75

Fort Madison Red Head Lawn..... \$3.25

Fort Madison Blue Head Lawn..... \$2.70

Jackson Lawn, 29 and 30 teeth, # doz.,
net, \$4.25

Kohler's:

Lawn Queen, 30-tooth, # doz..... \$3.45

Lawn Queen, 24-tooth, # doz..... \$3.60

Paragon, 20 tooth, # doz..... \$2.75

Paragon, 24-tooth, # doz..... \$3.00

Steel Garden, 14-tooth, # doz..... \$2.95

Malleable Garden, 14-tooth, # doz..... \$3.00

Rasps, Horse-

Disston..... 75%

Heller Bros..... 70&5% 70@10&5%

McCaffrey's American Standard.....
60@10&5%

New Nicholson..... 70@10&5%

See also Files.

Razors-

Boyle & Co..... 60 & 10%

Fox Razors, No. 42..... # doz. \$20.00

Fox Razors, No. 44..... # doz. \$20.00

Fox Razors, No. 83, Platina, # doz.....
\$10.00

See also Files.

Red Devil..... 40%

Silberstein..... \$18.00

Carbo Magnetic..... \$15.00

Griffin, No. 65..... \$12.00

Griffin, No. 66..... \$12.00

All other Razors..... 40%

Safety Razors-

Safety Razors..... 40%

New Gem, in Tin Boxes..... # doz. \$12.00

New Gem, Extra Blades..... # doz. \$2.35

Gem Outfits (Razor, Strop, etc.)..... # doz. \$2.50

Complete Razor, extra Blade in Leather
Case..... # doz. \$27.00

Silberstein..... 40%

Reels- Fishing-

Bishop's Independent Fish Reel Spooler

Screws—Bench and Hand—
Bench, Iron, doz. 1 in., \$2.50 @ \$2.75
1 1/2, \$3.00 @ \$3.25
2, \$3.50 @ \$3.75
Bench, Wood, Beech, doz. 3/4, 30 @ \$3.00
Hand, Wood, 30 @ \$3.00
R. Bliss Mfg. Co., Hand, 30 @ \$3.00
Chapin-Stephens Co., Hand, 30 @ \$3.00
Ohio Tool Co., Bench and Hand, 30 @ \$3.00
Coach, Lag and Hand Rail—
Lag, Common Point, list Oct. 1, 99, 80 @ \$5
Coach and Lag, Gimlet Point, list Oct. 1, 99, 80 @ \$5
Hand Rail, list Jan. 1, '81, 70 @ \$10 @ 75%

Jack Screws—
Standard List, 75 @ \$10 @ 80 @ \$5
Millers Falls, 50 @ \$10 @ 100 @ \$5
Millers Falls, Roller, 50 @ \$10 @ \$5
P. S. & W., 50 @ \$10 @ \$5
Sargent, 70 @ \$10 @ \$5

Machine—
List Jan. 1, '93,
Flat or Round Head, Iron, 50 @ \$5 @ 100 @ \$5
Flat or Round Head, Brass, 50 @ \$5 @ 100 @ \$5

Set and Cap—
Set (Iron or Steel), 75 @ \$5
Sg. Hd. Cap, 70 @ \$5
Hex. Hd. Cap, 70 @ \$5
Rd. or Fullister Hd. Cap, 70 @ \$5

Wood—
List July 23, 1903,
Manufacturers' printed discounts:
Flat Head, Iron, 87 1/2 @ \$10 @ \$5
Round Head, Iron, 85 @ \$10 @ \$5
Flat Head, Brass, 85 @ \$10 @ \$5
Round Head, Brass, 80 @ \$10 @ \$5
Flat Head, Bronze, 77 1/2 @ \$10 @ \$5
Round Head, Bronze, 75 @ \$10 @ \$5
Drive Screws, 87 1/2 @ \$10 @ \$5

Scroll Saws—See Saws, Scroll.
Scythes—
Per doz.
Clipper Pattern, Grass, \$4.25 @ \$5.00
Full Polished Clipper, \$4.75 @ \$5.50
Grain, \$7.00 @ \$7.50
Clipper, Grain, \$7.75 @ \$8.25
Weed and Bush, \$4.50 @ \$5.00

Seeders—
Raisin, 25 @ \$30
Sets—
Awl and Tool—
Broad Awl and Tool Sets:
Wood Hdl., 10 Acls. doz. \$2.00 @ \$2.25
Wood Hdl., 14 Acls. 6 Tools, doz. \$3.50 @ \$3.80

Alken's Sets, Awl and Tools:
No. 30, \$4.00 @ \$10.00, 50 @ \$10 @ 100 @ \$5
Fray's Adj. Tool Hdl., Nos. 1, \$12; 2, \$18; 3, \$18; 4, \$20; 5, \$27, 50 @ \$5
C. E. Jennings & Co.'s Model Tool Holders, 80 @ \$10
Millers Falls Adj. Tool Hdl., No. 1, \$12; No. 4, \$12; No. 5, \$18, 15 @ \$10
Stable's Excelsior, No. 1, \$7.50; No. 2, \$4.00; No. 3, \$5.50, 30 @ \$10 @ 100 @ \$5

Garden Tool Sets—
Ft. Madison, Three Pieces, Hoe, Rake and Shovel, doz. sets, \$9.00

Nail—
Square, doz. per gro. \$3.25 @ \$3.50
Round, Bk. and Pol., assorted, gro. \$1.80 @ \$3.00
Octagon, doz. \$1.50 @ \$3.75
Buck Brothers, 37 1/2 @ \$5
Cannon's Diamond Point, per gr. \$13, 25 @ \$5
Mayhew's, 25 @ \$5
Snell's Corrugated, Cup Pt. per gro. \$7.50
Snell's Knurled, Cup Pt., per gro. \$7.50

Rivet—
Regular list, 70 @ \$10 @ 75%
Saw—
Alken's Genuine, 50 @ \$10 @ \$5
Imitation, 50 @ \$10 @ \$5
Atkin's, 40 @ \$5
Criterion, 40 @ \$5
Adjustable, 40 @ \$5
Bemis & Call Co.'s, 30 @ \$5
Cross Cut, 45 @ \$5
Hammer, 20 @ \$5
Plate, 30 @ \$5
Spring Hammer, 30 @ \$5
Diston's Star and Monarch, 25 @ \$5
Morrill's No. 1, \$15.00, 50 @ \$5
Nos. 3 and 4, Cross Cut, \$20.00, 50 @ \$5
No. 5, Mill, \$30.00, 50 @ \$5
Nos. 10, 11, 12, \$15.00, 50 @ \$5
No. 1 Old Style, \$10.00, 50 @ \$5
Special, \$16.25, 50 @ \$5
Giant Royal, Cross Cut, doz. \$8.50
Royal, Hand, doz. \$8.50
Taintor Positive, doz. \$8.50

Shaving—
Fox Shaving Sets, No. 31, per doz. \$34.00 net
Sharpeners, Knife—
Chicago Wheel & Mfg. Co., 65 @ \$5
Shaves Spoke—
Iron, doz. \$1.00 @ \$1.15
Wood, doz. \$1.75 @ \$2.00
Bailey's (Stanley R. & L. Co.), 30 @ \$10 @ 100 @ \$5
Chapin-Stephens Co., 30 @ \$10 @ 100 @ \$5
Goodell's, \$3.00, 15 @ \$10 @ \$5
Wood's F1 and F2, 30 @ \$5

Shears—
Cast Iron, 7 8 9 in., 20 20 20 gro.
Best, \$16.00 15.00 20.00 gro.
Good, \$13.00 15.00 17.00 gro.
Cheap, \$5.00 6.00 7.00 gro.
Straight Trimmers, etc.:
Best quality, Jap., 70 @ \$7 @ 100 @ \$5
Fair qual. Jap., 80 @ \$8 @ 100 @ \$5
Nickel, 75 @ \$7 @ 100 @ \$5
Aulore's Shears, 40 @ \$10 @ 100 @ \$5
Acme Cast Shears, 40 @ \$10 @ 100 @ \$5
Heinrich's Tailors' Shears, 10 @ \$10
Wilkinson's Hedge, 100 list 45 @ \$5
Wilkinson's Branch, Lawn and Border, 40 @ \$5
Wilkinson's Sheep, 100 list 50 @ \$5

Tinners' Snips—
Steel Blades, 90 @ \$5 @ 100 @ \$5
Steel Laid Blades, 100 @ \$10 @ 100 @ \$5
Forged Handles, Steel Blades, Berlin, 80 @ \$10 @ 100 @ \$5

Heinrich's Snips, 40 @ \$5
Jennings & Griffin Mfg. Co.'s, 6 1/2 to 10 inch Snips, 40 @ \$7 1/2 @ 40 @ \$5
Niagara Snips, 40 @ \$5
P. S. & W. Co., 20 @ \$5
Triumph Pipe Shear, doz. 9.00

Pruning Shears and Tools—
Cronk's Grape Shears, 33 1/2 @ \$5
Cronk's Pruning Shears, 33 1/2 @ \$5
Diston's Combined Pruning Hook and Saw, doz. \$18.00, doz. \$12.00
Diston's Pruning Hook, doz. \$12.00

John T. Henry Mfg. Co.:
Pruning Shears, all grades, 40 @ \$10 @ 50 @ \$5
Orange Shears, 30 @ \$10 @ 30 @ \$5
Grape, 40 @ \$10 @ 50 @ \$5
Tree Pruners, 75 @ \$5
P. S. & W. Co., 33 1/2 @ \$5

Sheaves—Sliding Door—
Stowell's Anti-Friction, 50 @ \$5
Patent Roller Hatfield's, Sargent's list, 70 @ \$5
Reading, 70 @ \$5
R. & E. list, 33 1/2 @ \$5
Wrightsville Hatfield Pattern, 80 @ \$5

Sliding Shutter—
Reading list, 50 @ \$5
R. & E. list, 33 1/2 @ \$5
Sargent's list, 50 @ \$10

Shells—
Brass Shells, Empty:
First quality, all gauges, 60 @ \$5
Climax, Club, Rival, 10 and 12 gauge, 65 @ \$5
Paper Shells, Empty:
Acme Ideal Leader, New Rapid, 10, 12, 16 and 20 gauge, 25 @ \$5
Blue Rival, New Climax, Challenge, Monarch, Defiance, Repeater, Yellow Rival, 10, 12, 16 and 20 gauge, 20 @ \$5
Climax, Union, League, New Rival 10 and 12 gauge, 25 @ \$5
Climax, Union, League, New Rival 14, 16 and 20 gauge (\$7.50 list), 30 @ \$5
Expert, Metal Lined and Pigeon, 10, 12, 16 and 20 gauge, 33 1/2 @ \$5
Robin Hood, Low Brass, 20 @ \$10
Robin Hood, High Brass, 30 @ \$10

Shells, Loaded—
Loaded with Black Powder, 40 @ \$5
Loaded with Smokeless Powder, medium grade, 40 @ \$5
Loaded with Smokeless Powder, high grade, 40 @ \$10 @ 100 @ \$5
Robin Hood Smokeless Powder: Robin Hood, Low Brass, 20 @ \$10
Comets, High Brass, 30 @ \$10 @ 50 @ \$5

Shoes, Horse, Mule, &c.—
F. O. B., Pittsburg:
Iron, per keg \$4.00
Steel, per keg \$3.85
Burden's, all sizes, per keg, \$3.90

Shot—
Drop, up to B, 25-lb. bag, \$1.67
Drop, B and larger, per 25-lb. bag, \$1.85
Buck, 25-lb. bag, \$1.85
Chilled, 25-lb. bag, \$1.85

Shovels and Spades—
Association List, Nov. 15, 1903, 40 @ \$5

Sieves and Sifters—
Hunter's Imitation, gro. \$10.50 @ \$11.00
Buffalo Metallic, 14 in. S. 2, 8, 12, 16, 18, 20, 18 @ \$20
13.20 \$13.50 \$14.40

Sieves, Tin Rim—
Per dozen:
Mesh, 14 16 18 20
Black, full size, \$1.20 1.25 20 1.35
Plated, full size, \$1.30 1.35 1.40 1.45
Black, scant, \$6.35 1.00 1.05

Sieves, Wooden Rim—
Nested, 10, 11 and 12 inch, \$0.90 @ 0.95
Mesh 18, Nested, doz. 1.00 @ 1.05
Mesh 20, Nested, doz. 1.30 @ 1.40

Sinks—
Cast Iron—
Standard list, 60 @ \$10 @ 100 @ \$5
Note.—There is not entire uniformity lists used by jobbers.

Skels, Wagon—
Cast Iron, 75 @ \$7 @ 100 @ \$5
Steel, 40 @ \$10 @ 100 @ \$5

Slates, School—
Factory Shipments.
"D" Slates, 10 @ \$10 @ 100 @ \$5
Noiseless Slates, 60 @ \$5 tens

Slaw Cutters—See Cutters.
Slicers, Vegetable—
Sterling No. 10, \$2.00, 33 1/2 @ \$5

Snaps, Harness—
German, 40 @ \$10 @ 100 @ \$5
Covert Mfg. Co.:
Derby, 30 @ \$5 @ 25 @ \$5
High Grade, 45 @ \$5
Jockey, 30 @ \$10 @ 30 @ \$5
Trojan, 45 @ \$5
Yankee, 30 @ \$5 @ 25 @ \$5
Yankee, Roller, 30 @ \$5 @ 25 @ \$5

Snaths—
Crown, 60 @ \$5
German, 60 @ \$5
Model, 60 @ \$5
Triumph, 60 @ \$5
Oneda Community, 60 @ \$5
Solid Swivel, 60 @ \$5
Sargent's Patent Guarded, 60 @ \$10 @ 100 @ \$5

Snaths—
Scythes, 40 @ \$5

Snips, Tinner's—See Shears.
Spoons and Forks—
Silver Plated—

Good Quality—
Cheap, 50 @ \$10 @ 60 @ \$5
International Silver Co., 60 @ \$10 @ 100 @ \$5
1847 Rogers Bros. and Rogers & Hamilton, 40 @ \$10 @ 100 @ \$5
Rogers & Bro., William Rogers Eagle Brand, 50 @ \$10 @ 100 @ \$5
Anchor, Rogers Bros., 60 @ \$10 @ 100 @ \$5
Wm. Rogers & Son, 60 @ \$10 @ 100 @ \$5

Miscellaneous—
German Silver, 60 @ \$10 @ 60 @ \$5
Cattaraugus Cutlery Co., 50 @ \$10 @ 100 @ \$5
Yukon Silver, 50 @ \$10 @ 100 @ \$5

Tinned Iron—
Teas, per gro. \$5 @ \$5
Tables, per gro. 90 @ \$1.00

Springs—
Chicago (Coll.), 40 @ \$10 @ 100 @ \$5
Gem (Coll.), 20 @ \$10 @ 100 @ \$5
Reliance (Coll.), 40 @ \$10 @ 100 @ \$5
Star (Coll.), 30 @ \$10 @ 100 @ \$5
Torrey's Rod, 30 in., doz. \$1.10
Victor (Coll.), 50 @ \$10 @ 100 @ \$5

Carriage, Wagon, &c.
1 1/2 in. and Wider: Per Lo.
Black, 1 1/2 @ \$5
Half Bright, 1 1/2 @ \$5
Bright, 1 1/2 @ \$5
Painted Seat Springs: 1 1/2 x 2 x 25 per pr. 42 @ \$5
1 1/2 x 3 x 25 per pr. 70 @ \$5

Sprinklers, Lawn—
Enterprise, 25 @ \$30
Philadelphia No. 1, \$3.00 @ \$12; No. 2, \$15; No. 3, \$24, 30 @ \$30

Squares—
Nickel plated, Last Jan. 5, 1900, 70 @ \$10 @ 75 @ \$10
Steel and Iron, 70 @ \$10 @ 75 @ \$10
Rosewood Hdl. Try Square and T-Bevels, 60 @ \$10 @ 100 @ \$5
Iron Hdl. Try Squares and T-Bevels, 40 @ \$10 @ 100 @ \$5
Diston's Try Sq. and T-Bevels, 70 @ \$10 @ 100 @ \$5
Winterbottom's Try and Miter, 40 @ \$10 @ 100 @ \$5

Squeezers—
Lemon—
Wood, Common, gro. No. 6, \$5.25 @ \$5.50
No. 1, \$5.25 @ \$5.50
Wood, Porcelain Lined, Cheap, doz. \$1.00
Good Grade, doz. \$1.25
Tinned Iron, doz. \$0.75 @ \$1.25
Iron, Porcelain Lined, doz. \$1.75

Staples—
Barbed Blind, lb. 6 @ \$10 @ 6 @ \$10
Electricians' Association list, 80 @ \$10 @ 100 @ \$5
Fence Staples, Plain \$2.25; Galvanized, \$2.55
Poultry Netting, Staples, per lb. 3 1/4 @ \$10 @ 3 1/4 @ \$10
Grand Crossing Tack Co.'s list, 80 @ \$10 @ 80 @ \$10

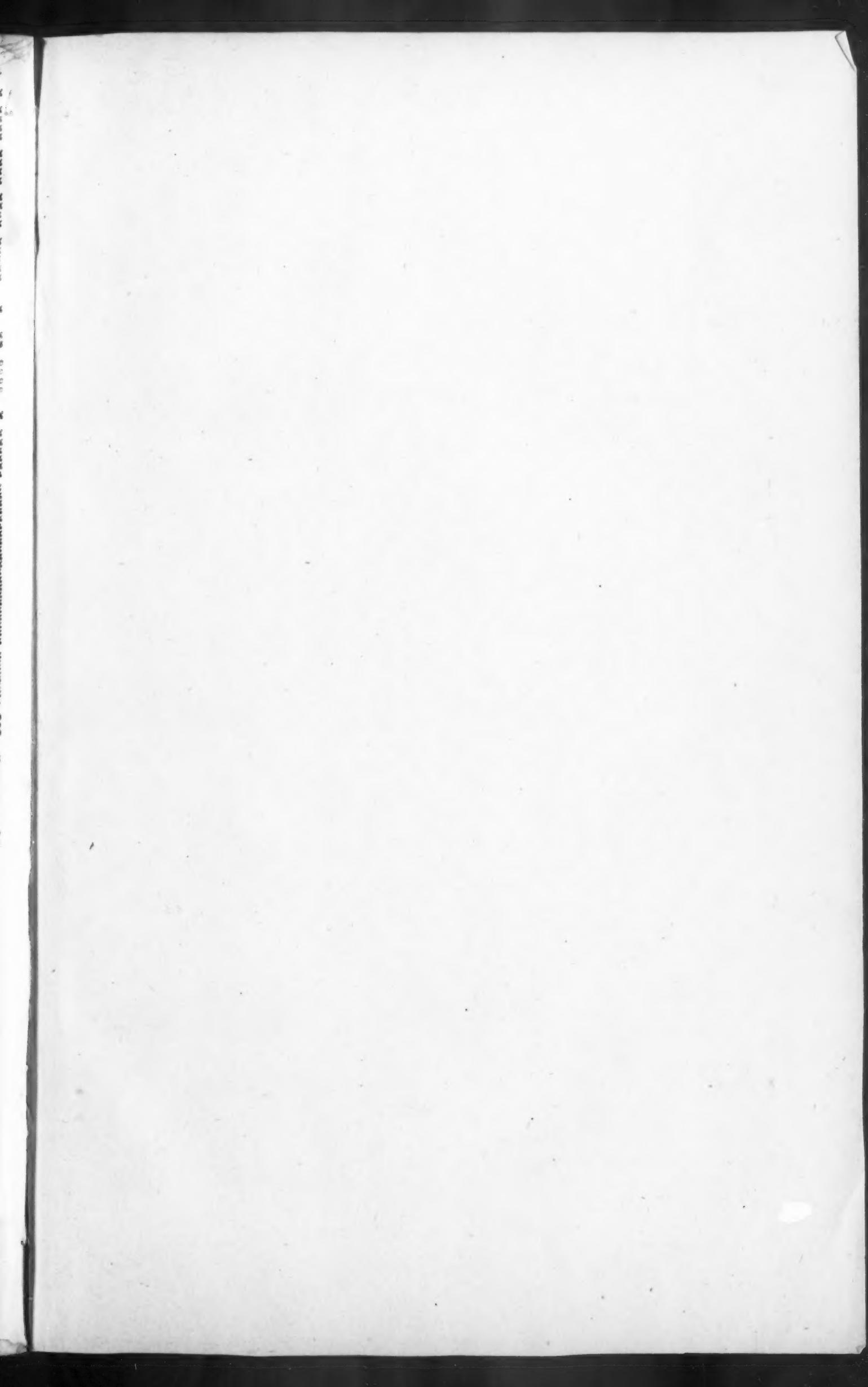
Steels, Butchers'—
Dick's, 30 @ \$5
Foster Bros., 30 @ \$5
C. & A. Hoffmann's, 40 @ \$5

Steelyards—
30 @ \$10 @ 30 @ \$10

Stocks and Dies—
Blacksmiths', 60 @ \$10 @ 60 @ \$10
Curby Reversible Hatchet Die Stock, 25 @ \$5
Derby Screw Plates, 25 @ \$5
Gardner Die Stocks No. 1, 40 @ \$5
Gardner Die Stocks, larger sizes, 40 @ \$5
Green River, 25 @ \$5
Lightning Screw Plate, 25 @ \$5
Little Giant, 25 @ \$5
Reece's New Screw Plates, 25 @ \$5 @ 30 @ \$5

Stone—
Scythe Stones—
Chicago Wheel & Mfg. Co.:
Gem Corundum, 10 inch, \$3.00 per gro., 12 inch, \$10.00
Norton Emery Scythe Stones: Less than gross lots, per gro. \$2.00
One gross or more, per gro. \$7.20
Lots of 10 gross or more, per gro. \$6.00
Pike Mfg. Co. 1901 list:
Black Diamond S. 8, \$12.00
Lamolle's S. 8, \$11.00
White Mountain S. 8, \$9.00
Green Mountain S. 8, \$8.00
Extra Indian Pond S. 8, \$7.50
No. 1 Indian Pond S. 8, \$7.00
No. 2 Indian Pond S. 8, \$6.50
Leader Red End S. 8, \$6.50
Balance of 1901 list 33 1/2 @ \$5

Oil Stones, &c.
Chicago Wheel & Mfg. Co., 1901 list:
Gem Corundum Oil, Double Grind, 50 @ \$5
Gem Corundum Oil, Single or Double Grind, 55 @ \$5
Gem Corundum Oil, Single or Double Grind, 55 @ \$5
Gem Corundum Razor Hones, 50 @ \$5
Pike Mfg. Co. 1901 list:
Arkansas Stone, No. 1, 3 to 5 in., \$2.80
Arkansas Stone, No. 1, 5 to 8 in., \$3.50
Arkansas Stone, No. 1, 8 to 10 in., \$4.00
Arkansas Stone, No. 1, 10 to 12 in., \$4.50
Arkansas Stone, No. 1, 12 to 14 in., \$5.00
Arkansas Stone, No. 1, 14 to 16 in., \$5.50
Arkansas Stone, No. 1, 16 to 18 in., \$6.00
Arkansas Stone, No. 1, 18 to 20 in., \$6.50
Arkansas Stone, No. 1, 20 to 22 in., \$7.00
Arkansas Stone, No. 1, 22 to 24 in., \$7.50
Arkansas Stone, No. 1, 24 to 26 in., \$8.00
Arkansas Stone, No. 1, 26 to 28 in., \$8.50
Arkansas Stone, No. 1, 28 to 30 in., \$9.00
Arkansas Stone, No. 1, 30 to 32 in., \$9.50
Arkansas Stone, No. 1, 32 to 34 in., \$10.00
Arkansas Stone, No. 1, 34 to 36 in., \$10.50
Arkansas Stone, No. 1, 36 to 38 in., \$11.00
Arkansas Stone, No. 1, 38 to 40 in., \$11.50
Arkansas Stone, No. 1, 40 to 42 in., \$12.00
Arkansas Stone, No. 1, 42 to 44 in., \$12.50
Arkansas Stone, No. 1, 44 to 46 in., \$13.00
Arkansas Stone, No. 1, 46 to 48 in., \$13.50
Arkansas Stone, No. 1, 48 to 50 in., \$14.00
Arkansas Stone, No. 1, 50 to 52 in., \$14.50
Arkansas Stone, No. 1, 52 to 54 in., \$15.00
Arkansas Stone, No. 1, 54 to 56 in., \$15.50
Arkansas Stone, No. 1, 56 to 58 in., \$16.00
Arkansas Stone, No. 1, 58 to 60 in., \$16.50
Arkansas Stone, No. 1, 60 to 62 in., \$17.00
Arkansas Stone, No. 1, 62 to 64 in., \$17.50
Arkansas Stone, No. 1, 64 to 66 in., \$18.00
Arkansas Stone, No. 1, 66 to 68 in., \$18.50
Arkansas Stone, No. 1, 68 to 70 in., \$19.00
Arkansas Stone, No. 1, 70 to 72 in., \$19.50
Arkansas Stone, No. 1, 72 to 74 in., \$20.00
Arkansas Stone, No. 1, 74 to 76 in., \$20.50
Arkansas Stone, No. 1, 76 to 78 in., \$21.00
Arkansas Stone, No. 1, 78 to 80 in., \$21.50
Arkansas Stone, No. 1, 80 to 82 in., \$22.00
Arkansas Stone, No. 1, 82 to 84 in., \$22.50
Arkansas Stone, No. 1, 84 to 86 in., \$23.00
Arkansas Stone, No. 1, 86 to 88 in., \$23.50
Arkansas Stone, No. 1, 88 to 90 in., \$24.00
Arkansas Stone, No. 1, 90 to 92 in., \$24.50
Arkansas Stone, No. 1, 92 to 94 in., \$25.00
Arkansas Stone, No. 1, 94 to 96 in., \$25.50
Arkansas Stone, No. 1, 96 to 98 in., \$26.00
Arkansas Stone, No. 1, 98 to 100 in., \$26.50
Arkansas Stone, No. 1, 100 to 102 in., \$27.00
Arkansas Stone, No. 1, 102 to 104 in., \$27.50
Arkansas Stone, No. 1, 104 to 106 in., \$28.00
Arkansas Stone, No. 1, 106 to 108 in., \$28.50
Arkansas Stone, No. 1, 108 to 110 in., \$29.00
Arkansas Stone, No. 1, 110 to 112 in., \$29.50
Arkansas Stone, No. 1, 112 to 114 in., \$30.00
Arkansas Stone, No. 1, 114 to 116 in., \$30.50
Arkansas Stone, No. 1, 116 to 118 in., \$31.00
Arkansas Stone, No. 1, 118 to 120 in., \$31.50
Arkansas Stone, No. 1, 120 to 122 in., \$32.00
Arkansas Stone, No. 1, 122 to 124 in., \$32.50
Arkansas Stone, No. 1, 124 to 126 in., \$33.00
Arkansas Stone, No. 1, 126 to 128 in., \$33.50
Arkansas Stone, No. 1, 128 to 130 in., \$34.00
Arkansas Stone, No. 1, 130 to 132 in., \$34.50
Arkansas Stone, No. 1, 132 to 134 in., \$35.00
Arkansas Stone, No. 1, 134 to 136 in., \$35.50
Arkansas Stone, No. 1, 136 to 138 in., \$36.00
Arkansas Stone, No. 1, 138 to 140 in., \$36.50
Arkansas Stone, No. 1, 140 to 142 in., \$37.00
Arkansas Stone, No. 1, 142 to 144 in., \$37.50
Arkansas Stone, No. 1, 144 to 146 in., \$38.00
Arkansas Stone, No. 1, 146 to 148 in., \$38.50
Arkansas Stone, No. 1, 148 to 150 in., \$39.00
Arkansas Stone, No. 1, 150 to 152 in., \$39.50
Arkansas Stone, No. 1, 152 to 154 in., \$40.00
Arkansas Stone, No. 1, 154 to 156 in., \$40.50
Arkansas Stone, No. 1, 156 to 158 in., \$41.00
Arkansas Stone, No. 1, 158 to 160 in., \$41.50
Arkansas Stone, No. 1, 160 to 162 in., \$42.00
Arkansas Stone, No. 1, 162 to 164 in., \$42.50
Arkansas Stone, No. 1, 164 to 166 in., \$43.00
Arkansas Stone, No. 1, 166 to 168 in., \$43.50
Arkansas Stone, No. 1, 168 to 170 in., \$44.00
Arkansas Stone, No. 1, 170 to 172 in., \$44.50
Arkansas Stone, No. 1, 172 to 174 in., \$45.00
Arkansas Stone, No. 1, 174 to 176 in., \$45.50
Arkansas Stone, No. 1, 176 to 178 in., \$46.00
Arkansas Stone, No. 1, 178 to 180 in., \$46.50
Arkansas Stone, No. 1, 180 to 182 in., \$47.00
Arkansas Stone, No. 1, 182 to 184 in., \$47.50
Arkansas Stone, No. 1, 184 to 186 in., \$48.00
Arkansas Stone, No. 1, 186 to 188 in., \$48.50
Arkansas Stone, No. 1, 188 to 190 in., \$49.00
Arkansas Stone, No. 1, 190 to 192 in., \$49.50
Arkansas Stone, No. 1, 192 to 194 in., \$50.00
Arkansas Stone, No. 1, 194 to 196 in., \$50.50
Arkansas Stone, No. 1, 196 to 198 in., \$51.00
Arkansas Stone, No. 1, 198 to 200 in., \$51.50
Arkansas Stone, No. 1, 200 to 202 in., \$52.00
Arkansas Stone, No. 1, 202 to 204 in., \$52.50
Arkansas Stone, No. 1, 204 to 206 in., \$53.00
Arkansas Stone, No. 1, 206 to 208 in., \$53.50
Arkansas Stone, No. 1, 208 to 210 in., \$54.00
Arkansas Stone, No. 1, 210 to 212 in., \$54.50
Arkansas Stone, No. 1, 212 to 214 in., \$55.00
Arkansas Stone, No. 1, 214 to 216 in., \$55.50
Arkansas Stone, No. 1, 216 to 218 in., \$56.00
Arkansas Stone, No. 1, 218 to 220 in., \$56.50
Arkansas Stone, No. 1, 220 to 222 in., \$57.00
Arkansas Stone, No. 1, 222 to 224 in., \$57.50
Arkansas Stone, No. 1, 224 to 226 in., \$58.00
Arkansas Stone, No. 1, 226 to 228 in., \$58.50
Arkansas Stone, No. 1, 228 to 230 in., \$59.00
Arkansas Stone, No. 1, 230 to 232 in., \$59.50
Arkansas Stone, No. 1, 232 to 234 in., \$60.00
Arkansas Stone, No. 1, 234 to 236 in., \$60.50
Arkansas Stone, No. 1, 236 to 238 in., \$61.00
Arkansas Stone, No. 1, 238 to 240 in., \$61.50
Arkansas Stone, No. 1, 240 to 242 in., \$62.00
Arkansas Stone, No. 1, 242 to 244 in., \$62.50
Arkansas Stone, No. 1, 244 to 246 in., \$63.00
Arkansas Stone, No. 1, 246 to 248 in., \$63.50
Arkansas Stone, No. 1, 248 to 250 in., \$64.00
Arkansas Stone, No. 1, 250 to 252 in., \$64.50
Arkansas Stone, No. 1, 252 to 254 in., \$65.00
Arkansas Stone, No. 1, 254 to 256 in., \$65.50
Arkansas Stone, No. 1, 256 to 258 in., \$66.00
Arkansas Stone, No. 1, 258 to 260 in., \$66.50
Arkansas Stone, No. 1, 260 to 262 in., \$67.00
Arkansas Stone, No. 1, 262 to 264 in., \$67.50
Arkansas Stone, No. 1, 264 to 266 in., \$68.00
Arkansas Stone, No. 1, 266 to 268 in., \$68.50
Arkansas Stone, No. 1, 268 to 270 in., \$69.00
Arkansas Stone, No. 1, 270 to 272 in., \$69.50
Arkansas Stone, No. 1, 272 to 274 in., \$70.00
Arkansas Stone, No. 1, 274 to 276 in., \$70.50
Arkansas Stone, No. 1, 276 to 278 in., \$71.00
Arkansas Stone, No. 1, 278 to 280 in., \$71.50
Arkansas Stone, No. 1, 280 to 282 in., \$72.00
Arkansas Stone, No. 1, 282 to 284 in., \$72.50
Arkansas Stone, No. 1, 284 to 286 in., \$73.00
Arkansas Stone, No. 1, 286 to 288 in., \$73.50
Arkansas Stone, No. 1, 288 to 290 in., \$74.00
Arkansas Stone, No. 1, 290 to 292 in., \$74.50
Arkansas Stone, No. 1, 292 to 294 in., \$75.00
Arkansas Stone, No. 1, 294 to 296 in., \$75.50
Arkansas Stone, No. 1, 296 to 298 in., \$76.00
Arkansas Stone, No. 1, 298 to 300 in., \$76.50
Arkansas Stone, No. 1, 300 to 302 in., \$77.00
Arkansas Stone, No. 1, 302 to 304 in., \$77.50
Arkansas Stone, No. 1, 304 to 306 in., \$78.00
Arkansas Stone, No. 1, 306 to 308 in., \$78.50
Arkansas Stone, No. 1, 308 to 310 in., \$79.00
Arkansas Stone, No. 1, 310 to 312 in., \$79.50
Arkansas Stone, No. 1, 312 to 314 in., \$80.00
Arkansas Stone, No. 1, 314 to 316 in., \$80.50
Arkansas Stone, No. 1, 316 to 318 in., \$81.00
Arkansas Stone, No. 1, 318 to 320 in., \$81.50
Arkansas Stone, No. 1, 320 to 322 in., \$82.00
Arkansas Stone, No. 1, 322 to 324 in., \$82.50
Arkansas Stone, No. 1, 324 to 326 in., \$83.00
Arkansas Stone, No. 1, 326 to 328 in., \$83.50
Arkansas Stone, No. 1, 328 to 330 in., \$84.00
Arkansas Stone, No. 1, 330 to 332 in., \$84.50
Arkansas Stone, No. 1, 332 to 334 in., \$85.00
Arkansas Stone, No. 1, 334 to 336 in., \$85.50
Arkansas Stone, No. 1, 336 to 338 in., \$86.00
Arkansas Stone, No. 1, 338 to 340 in., \$86.50
Arkansas Stone, No. 1, 340 to 342 in., \$87.00
Arkansas Stone, No. 1, 342 to 344 in., \$87.50
Arkansas Stone, No. 1, 344 to 346 in., \$88.00
Arkansas Stone, No. 1, 346 to 348 in., \$88.50
Arkansas Stone, No. 1, 348 to 350 in., \$89.00
Arkansas Stone, No. 1, 350 to 352 in., \$89.50
Arkansas Stone, No. 1, 352 to 354 in., \$9



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